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ABSTRACT

The 1984-85 cost-effects study represents the third annual analysis of the components of Cleveland's Affirmative Reading Skills Plan, which offers three instructional strands--developmental (regular reading/language arts), support (additional enrichment, corrective or remedial), and compensatory (instruction for students having reading scores in the lower third)--to students in grades 2 through 12. Findings of the study reflect the effectiveness of the three strands, based on comparisons between black students and others, all five racial categories, adversely affected and nonadversely affected students, upper and middle third populations, and males and females at all grade levels. Some of the 10 major findings are that black students continue to show less gain at several grade levels, that students at every elementary level not receiving the compensatory component fall behind their peers, and that secondary compensatory program effects are consistently positive. Four of the thirteen recommendations include the need to (1) determine whether a more cost-effective approach with equal racial impact can be found for grades two and three; (2) review the goals and implementation of the Diagnostic Reading Clinic, which showed no positive effects, at grades four and five; (3) review successful programs that have strong positive results with black students; and (4) explore ways to improve the English program at the secondary level. (Extensive appendixes include tables of data on which the findings were based.) (LLZ)

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COST-EFFECTIVENESS

AFFIRMATIVE READING SKILLS PROGRAM

1984-85

POLICY, PLANNING, AND ANALYSIS DIVISION
RESEARCH AND ANALYSIS DEPARTMENT
CLEVELAND CITY SCHOOL DISTRICT

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COST-EFFECTIVENESS 1984-85
AFFIRMATIVE READING SKILLS PROGRAM

EXECUTIVE SUMMARY

Purpose.

The 1984-85 cost-effects study represents the third annual analysis of the components of the Affirmative Reading Skills Plan of the Cleveland City School District. This study is one part of the District's effort to improve its reading programs.

Description.

Under the District's Affirmative Reading Skills Plan, three instructional strands are offered: developmental, support, and compensatory. The developmental strand is the regular reading/language arts curriculum. In the support strand students receive additional enrichment, as well as corrective and remedial support. For the compensatory strand selection had been based on students being in the lower third in reading achievement.

Effectiveness of reading programs is measured by average change in NCE scores on two administrations of the comprehension subtest of the Comprehensive Test of Basic Skills (CTBS). For this study the two tests were Spring, 1984 and Spring, 1985. The per student cost for each combination of programs was calculated, including personnel, material, and supplies. Finally, a cost-effectiveness measure was calculated by dividing the estimated per student cost by the average NCE gain. Results were analyzed for each program combination.

Findings.

(1) All elementary school students in the regular program receive the same developmental and support strands. Grade 1 is not included in this analysis, since there is no comparable pre-score. For the students not receiving compensatory programs, the average NCE change for each grade was within one point of last year's, except for Grade 6, which was one point better. (See Table 4 on Page 10.) Black students' average change was at least one point lower than Other students for Grades 3,4,5 and within one point of Other for Grades 2 and 6. (Table 5A, Page 11)

(2) A separate effect analysis of the elementary support strand is not possible, since all students receive it. However, the support strand costs are available: $8 per student for Linking Language Learnings, Grades 2 and 3, and $13 per student for Diagnostic Reading Probes, used in Grades 4 and 5. These cost levels are slightly less than one-twentieth that of THINK, the support program for Grade 6 and the secondary school level.

(3) The elementary compensatory programs showed gains ranging from 3.8 to 13.6, excluding Diagnostic Reading Clinic, which had lower results. (Table 3A on Page 7.)

(4) Comparing results of the current study (1984-85) with the previous year (1983-84) at the secondary level, students receiving the developmental program, English, and the support program, THINK, changed little in their average effect measure for Grades 7,9,10, and 12. Grade 8 showed over a one point decline, while Grade 11 showed over a one point improvement. Black students' average NCE change was within one point of Other students except in Grade 11, where it was over one point lower.

(5) The secondary support program, THINK, cost $276 per students and had mixed results. Grade 7, 8, and 11 students receiving the compensatory program did 2 to 3 points better with THINK than without. Grade 9 compensatory students not taking THINK, however, did much better than those with THINK. Among Grade 10 and 11 students not in compensatory programs, those not receiving Think did better than those with THINK. (Table 2 on Page 6)

(6) Students in the secondary school compensatory programs showed average NCE changes of 4.1 to 5.8 points at a per student cost of $668 (STAR, Junior High) and $790 (Communication Skills, Senior High).

Recommendations.

Consistently cost-effective programs such as Reading Strategy should be maintained or expanded. Where programs are less effective, as with THINK for some grade levels and groups, piloting new programs or overhauling present ones should be explored. Racial parity problems need to be addressed in most areas. Strengthened elementary support programs should be considered. Recommendations on Pages 21-22 indicate areas to address.

NOTES FOR PAGE 3 GRAPHS:

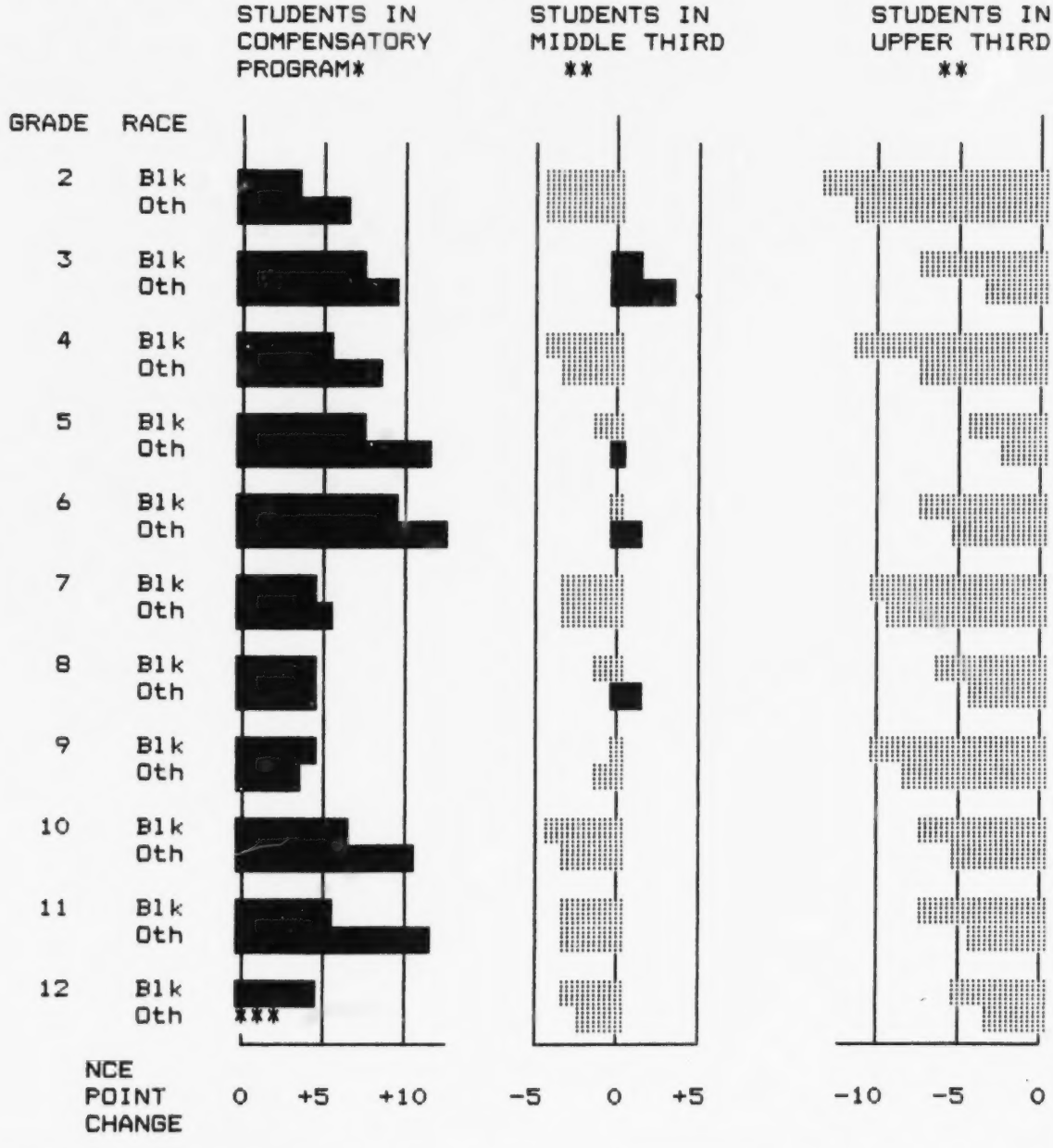
* The graph at left includes students enrolled in developmental and support programs and the compensatory program with highest enrollment at each grade level.

** The graphs in the middle and at right include students enrolled in developmental and support programs, but not compensatory.

*** Where the sample size is less than 10, data is not reported here.

EXECUTIVE SUMMARY

READING COMPREHENSION
AVERAGE CHANGES IN STUDENT NCE SCORES
1984-85



CODE: ■ Positive change ▒ Negative change

NOTES: See Page 2 of Executive Summary.

INTRODUCTION

The 1984-85 cost-effects study represents the third annual effort to bring together the expenses and achievements of all the reading curriculum components in a single document. The current study provides an additional breakout of secondary school students enrolled in major work or honors English. A special magnet school group is also added in junior high years, since these students do not receive the THINK Program (discussed below).

Effectiveness of reading programs is once again measured by average change in students' NCE scores on the comprehension subtest of the Comprehensive Test of Basic Skills (CTBS). Comparisons are made among groups of students being served by various combinations of reading programs to determine whether particular combinations are more effective for one group or another. The 1984-85 results are also compared with the previous two school years. Cost data, provided by the Curriculum and Instruction Department (supplemented by Treasury Department data), is reduced to cost per student for various combinations of reading program components. Finally, a cost-effect ratio is calculated.

BACKGROUND

The Cleveland City School District is committed to implementing an affirmative reading skills plan in response to the Remedial Order of the Federal District Court. Under the plan, three instructional strands are offered: developmental, support, and compensatory. In the upper elementary, a one-day diagnostic process is also available.

The developmental strand is the regular English and reading/language arts curriculum. With the exception of Lau-serviced students and most categories of special education students, all students in Grades 1 through 11 are enrolled in reading (Grades 1-6) or in an English class (Grades 7-11). For Grade 12, English is optional.

The support strand provides additional enrichment, as well as corrective and remedial support, to the basic curriculum. In the elementary Grades 1 through 5, special curricular materials and teacher in-service training are provided. Linking Language Learnings is the support program for Grades 1 through 3; for Grades 4 and 5, Diagnostic Reading Probes is the support program. Students in Grade 6 and secondary school students receive a separate class, THINK, for their support program. All Grade 6 through 9 students should receive THINK, except those in magnet schools, Lau, or special education. For Grades 10 through 12, scheduling considerations determined whether students got THINK 5 days a week, fewer than 5 days a week, or not at all.

Selection for the compensatory strand had been based on a student's having a reading achievement score in the lower third. Beginning in the 1984-85 school year, the 36th percentile was used for the cutoff for elementary grades (while the secondary school cutoff has remained at 33).

PURPOSE

The District needs to keep careful track of how well its reading program dollars are working toward achieving its goals. The statistics and analysis in this report relate to these actual local costs and benefits. "Such analyses, including per-pupil costs, should be used to reassess current spending priorities."[1] The School District produces an annual synthesis study including results from Cost Effects and other reading reports "... with conclusions as to effectiveness of various treatments."[2] Based on the Synthesis each year the Department of Curriculum and Instruction reports on recommended modifications of the affirmative reading skills program.

RELEVANT PUBLICATIONS

Similiar goals to those of the present study were present in Report #7 of the national Sustaining Effects Study[3], "An Analysis of the Cost and Effectiveness of Compensatory Education." The Sustaining Effects Study also compared treatments across grades, although Report #7 limited itself to elementary grades. Results from Sustaining Effects showed "... that CE (Compensatory Education) students learn about as much during each school year as non-CE students." Further mention is made that "Our results have been nondecisive in the sense that none of our comparisons among groups of students reveal meaningful differences in cost-effectiveness."

In addition to the general results of the Sustaining Effects Study, some technical approaches might be useful in Cleveland's work. The outcome measure, a vertical-scale, has some characteristics which would enhance this study over our use of NCEs (discussed below). In addition to the equal interval attribute of the NCE scale, "... the Scale Scores permit charting of student growth from the beginning through Grade 12 ..."[4]

METHODOLOGY

File. A special computer file was built including relevant information for every student in Grades 1 through 12 for the school year 1984-85. An entry for each student indicated in which (if any) reading strand components he/she

was enrolled. CTBS comprehension subtest results from 1984 (Spring) and 1985 (Spring) were also recorded for students on their entries. Finally, some demographic data was added, including race, sex, and school. With help from the Management and Systems Analysis Division, more detail on the developmental strand could be obtained this year.

Population. The system's Grade 2-12 students were in the population being studied here. First grade was not included in this study because there was no comparable pre-test. The population also excludes: special education students not in the regular reading curriculum, learning disabled students (some of whom were in the regular reading curriculum), Lau-serviced students not in the regular reading curriculum, and non-attendees.

Attendance. Further narrowing of the scope of this study came from efforts to examine only those students with at least one semester of full participation, to assure adequate treatment. Secondary school students were included as treated in the analysis if they had two consecutive 'good' quarters; that is, quarters in which both achievement grades were non-failures. (Secondary students would also be included if one or both grades were Fs, but the two-quarter total of absences was less than 30.) Elementary students were eliminated from the compensatory program analysis if they exited before February 1 or if they enrolled after February 1. All students labeled as "Withdrawn" on the End-of-School-Year File were also excluded.

Tests. The final requirement for students to be included was that they have matching pre and post tests. The pre would be the CTBS appropriately administered and normed for the year below their current grade of enrollment, while the post test was administered for their Spring,1985 grade level. This procedure excludes students who were not promoted. Reference may be made to Table 1 below, indicating the percentages of students with pre and post tests for the range of study grades.

Care should be used in generalizing from the group with matching tests to the whole student population, since the group of students with matching tests is not a random sample of the whole student population.

Costs. Program cost per student was obtained by dividing the total estimated program expenses by the number of students enrolled in that program. Costs included personnel, equipment, materials, and supplies. Enrollment figures counted all students enrolled in the program irrespective of whether they passed the attendance and testing screens.

Effects. Effects were measured by average change in Normal Curve Equivalent (NCE) scores for a group. The NCE

scale is one recommended for use in federal evaluation studies because the numbers can be validly averaged, unlike grade equivalent scores or percentiles. If a group of students has an average NCE of 50, they are near the national average for their grade. If a group has a year-to-year NCE change of 0, they have progressed exactly one year's worth. This might be a reasonable par performance guideline for the regular group. If a group has a year-to-year change of 7, they have increased faster than normal for their grade level and moved one-third of a standard deviation relative to their peers. When comparing groups of students, this study has arbitrarily elected to use a one point NCE diference as a reference; when the groups' changes are less than a point apart, they are described as "close to the same."

Consideration may be given of future use of the vertical scale scores for the effect measure. (See discussion above under "Relevant Publications.") These scores would have the averaging characteristic of NCEs, but would add: (1) enhanced cross-grade comparability, (2) removal of non-linearity of C/E Ratio calculation, allowing inclusion of the developmental strand in that analysis, and (3) sample expansion to include non-promotes, particularly important in Grades 2 and 10.

Cost/Effect Ratio. Dividing the per student costs by the per student effects yields an average cost effectiveness ratio in the units of dollars per point of NCE gain. Note that the cost per student is calculated on the basis of all enrolled students. On the other hand, the effect per student is based on those having sufficient participation and matching test scores. The assumption, which will tend to make the ratios appear better than they actually are, is that the students who are excluded from the effects analysis improved as much as those included.

Caveats. Reference may be made to the cautions explained in the previous CE Study[5]. These cautions include: (1) grade level scale differences, (2) regression toward the mean, and (3) danger of "teaching the test." Additional care must be taken until more comprehensive cost accounting and file control are completed. (See Recommendations 12 and 13 below.)

Appendices. The tables in the text below draw material from Appendices 1-11 which give detailed study results. Each appendix presents the reading achievements of the students within grades grouped according to the major categories of reading strand components which they received. Every grade has one or more 'regular' sets of strand components for students above the compensatory cut-off as well as at least one compensatory track for students in the lower one-third. More complete detail, for example, school-level results (See sample pages in Appendix 12), is available to curriculum planners and research staff on request.

EFFECTS -- NON-COMPENSATORY STUDENTS

The largest group of students contains those not receiving compensatory programs. Table 1 below presents the average NCE year-to-year changes for students receiving the developmental and support reading strands, but not the compensatory. In all grades the non-compensatory group of students fell relative to the norm for their grade level.

For the non-compensatory enrollment, the most abrupt decline occurred in Grade 2, a drop of 8.1. The next highest drop (6.1) occurred in the fourth grade. In the previous year's study those grades also had respectively the highest and second highest drops.

TABLE 1
AVERAGE NCE CHANGE -- READING COMPREHENSION
STUDENTS IN DEVELOPMENTAL AND SUPPORT
BUT NOT IN COMPENSATORY PROGRAMS
1984-85

GRADE	AVERAGE NCE CHANGE	STUDENTS IN SAMPLE (PRE AND POST TEST) NUMBER (PERCENT)
2	-8.1	3,935 (81%)
3	-1.7	3,181 (82%)
4	-6.1	2,919 (84%)
5	-1.8	2,556 (82%)
6	-1.8	2,372 (81%)
7	-4.9	2,184 (76%)
8	-1.5	1,714 (71%)
9	-2.3	1,500 (70%)
10	-3.5	1,096 (71%)
11	-3.1	580 (70%)
12	-2.2	320 (79%)

EFFECTS -- SUPPORT STRAND (THINK)

In the secondary grades, some comparison is possible between those in the support strand (THINK) and those not. With the warning that random selection to the groups was not made, one may still observe differential results. Table 2 excerpts relevant data from Appendix 1 for non-compensatory students. Reference may be made to Table 3 for students receiving a compensatory program with or without THINK.

One comparison may be made between students in Grades 6 through 9 at magnet schools, who don't receive THINK, and the majority of the student population receiving THINK. The

average NCE change in Grades 6 and 9 is almost the same for the two groups, while the magnet school students have over one NCE point better results for Grade 7 and 8. Nonrandom selection may have a large bearing in this case, since magnet school students must choose to be there.

For the junior high grades (7-9), a comparison is possible for students in the compensatory program, STAR, between those in THINK and those not (See Table 3A). Although the curriculum would indicate that all such students should be receiving THINK, school distribution statistics strongly suggest that they do not. In Grades 7 and 8, students receiving STAR and THINK do better than those without THINK, while in Grade 9, the STAR students without THINK do better than those with THINK.

At the high school level, for Grades 10 and 11 (Table 2), non-compensatory students receiving English but not Think fell at least one point less than those taking English and THINK; for Grade 12 the two groups were almost even. Among high school students receiving the compensatory program (Table 3A), Communication Skills, those receiving THINK did better than those without THINK in Grade 11, while the groups were almost even in Grades 10 and 12.

TABLE 2
AVERAGE NCE CHANGE -- READING COMPREHENSION
STUDENT GROUPS WITH/WITHOUT SUPPORT STRAND (THINK)
1984-85

GRADE	READING STRAND ENROLLMENT			STUDENTS TESTED	NCE AVE CHANGE
	DEVELOPMENTAL	SUPPORT	COMPENSATORY		
6	Reading	Think	None	2,372	-1.8
6	Reading	(Magnet)	None	275	-2.4
7	English	Think	None	2,184	-4.9
7	English	(Magnet)	None	143	-1.5
8	English	Think	None	1,714	-1.5
8	English	(Magnet)	None	119	+1.2
9	English 1	Think	None	1,500	-2.3
9	English 1	(Magnet)	None	180	-2.2
10	English 2	Think	None	1,096	-3.5
10	English 2	None	None	472	-2.3
11	English 3	Think	None	580	-3.1
11	English 3	None	None	653	-2.1
12	English 4	Think	None	320	-2.2
12	English 4	None	None	459	-1.7

EFFECTS -- COMPENSATORY PROGRAMS

Reviewing the NCE changes for elementary compensatory program groups, one finds most of them with substantial effects. Reference to Table 3A highlights the changes. (More complete details may be obtained from Appendix 1.)

TABLE 3A
COMPENSATORY PROGRAM READING ACHIEVEMENTS
1984-85

GRADE	PROGRAM	AVERAGE NCE CHANGE	SAMPLE SIZE
2	Reading Improvement	+3.8	122
3	Reading Improvement	+7.7	445
3	Reading Improvement (1)	+6.6	99
4	Reading Strategy	+5.4	418
4	Reading Strategy (1)	+3.8	187
4	Diag.Rdg.Clc.-Remediation	-3.8	46
4	Diad.Rdg.Clc.-Remediation (1)	+0.8	31
4	Star Hoffman Labs	+4.4	53
5	Reading Strategy	+8.0	602
5	Reading Strategy (1)	+7.8	102
5	Diag.Rdg.Clc.-Remediation	+2.6	105
5	Diag.Rdg.Clc.-Remediation (1)	+7.6	64
5	Star Hoffman Labs	+3.8	82
5	STAR	+7.8	205
6	STAR	+9.4	961
6	Star Hoffman Labs	+13.6	151
7	STAR (with THINK)	+3.7	681
7	STAR (without THINK)	+0.3	131
8	STAR (with THINK)	+4.3	834
8	STAR (without THINK)	+1.9	116
9	STAR (with THINK)	+4.2	532
9	STAR (without THINK)	+7.3	256
10	Communication Skills (w. THINK)	+6.3	271
10	Comm. Skills (without THINK)	+5.8	393
11	Communication Skills (w. THINK)	+5.4	152
11	Comm. Skills (without THINK)	+2.9	385
12	Communication Skills (w. THINK)	+4.7	63
12	Comm. Skills (without THINK)	+5.2	194

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.

Some additional lines are in the appendices this year to provide data on the substantial number of students receiving a program other than the usual one for their grade level. Elementary STAR, for example, enrolled and treated 252 Grade 5 students, although it is normally for students in Grade 6.

Students in Reading Improvement had mean NCE changes of 3.8 in Grade 2 and 7.7 in Grade 3. A low percentage were tested in Grade 2 due to high retention in the compensatory group. For Reading Strategy, those in Grade 4 had an average gain of 5.4, while students in Grade 5 gained, on average, 8.Ø NCE points. Results for students taking Remediation in the Diagnostic Reading Clinic (a small group) had mixed results: as observed for 1983-84, Grade 4 students showed an average decrease, while Grade 5 increased. Students receiving Diagnosis in the Diagnostic Reading Clinic in addition to another compensatory program also showed mixed results. Selection into such diagnosis, however, may in itself indicate a special problem for a student. Star Hoffman Labs involved small groups, but the Hoffman students showed a gain of 3.8 in Grades 5 and the highest of all groups (13.6) in Grade 6. Those in the STAR Program in Grade 6, showed an increase of 9.4.

At the secondary level, the compensatory programs are STAR (Grades 7-9) and Communication Skills (Grades 1Ø-12). Almost all groups had positive changes, with the exception of Grade 7 STAR students without THINK, who were only three-tenths of a point above zero. The average gain for students receiving STAR without THINK was 4.2 NCE points (See Table 3B). For students enrolled in Communication Skills without THINK, the average gain was 4.5 NCE. The average for students in STAR with THINK also was close to the average change without THINK. However, Communication Skills students (Grades 1Ø-12) with THINK had an average change of slightly more than one point higher than the Communication Skills students not taking THINK.

Table 3B below draws on the data in Table 3A and condenses it so that each separate compensatory program can be viewed as a whole, averaging the NCE results over the students in the various grades served.

TABLE 3B
AVERAGE NCE CHANGE -- READING COMPREHENSION
STUDENTS IN COMPENSATORY PROGRAMS
1984-85

PROGRAM	GRADE LEVEL(S)	NCE CHANGE
Reading Improvement	2-3	+6.9
Reading Strategy	4-5	+6.9
Reading Strategy (1)	4-5	+5.2
Diag.Rdg.Clc - Remediation	4-5	+0.7
Diag.Rdg.Clc - Remediation (1)	4-5	+5.4
STAR (Elementary)	6	+9.4
Star Hoffman Labs	6	+13.6
Star (without THINK)	7-9	+4.2
Star (with THINK)	7-9	+4.1
Comm.Skills (without THINK)	10-12	+4.5
Comm.Skills (with THINK)	10-12	+5.8

...Note: (1) See Table 3A.

COMPARISON BETWEEN 1983-84 AND 1984-85

Table 4 compares the effects recorded in the current 1984-85 study with the NCE changes reported in the previous cost-effect study (1983-84). Basic comparison is meaningful, although minor differences may be attributed to new file arrangements. Refer to Appendix 2 for more complete details, including 1982-83 study results.

Developmental. The left portion of Table 4 covers students in the regular reading curriculum receiving the developmental and support strands appropriate for their grade level. The sharpest decline in each year was seen at Grade 2, continuing the pattern from the 1982-83 academic year. In the regular reading curriculum without compensatory programs, students in one grade (8) did worse (by at least one NCE point) in 1984-85 than in 1983-84, while two (Grades 6 and 11) were better. The other eight grades were nearly even.

Compensatory. On the right side of the table are the average NCE change results for students who received, in addition to the developmental and support strands, the most common compensatory program at their grade level: Reading Improvement for Grades 2 and 3, Reading Strategy for Grades 4 and 5, STAR for Grades 6 through 9, and Communication Skills for grades 10 through 12.

Among the elementary compensatory programs, students in Grades 2 and 3 (Reading Improvement) and Grade 6 (STAR) showed a lower gain this year than last. Those in Grade 4 and 5 (Reading Strategy) had less than one NCE point difference between the two years.

TABLE 4
AVERAGE NCE CHANGE COMPARISON
ACADEMIC YEARS 1983-84 AND 1984-85

GRADE	DEVELOPMENTAL, SUPPORT, NOT COMPENSATORY		DEVELOPMENTAL, SUPPORT, PLUS COMPENSATORY	
	84-85	83-84	84-85	83-84
2	-8.1	-8.6	+3.9	+7.3
3	-1.7	-2.0	+7.7	+9.0
4	-6.1	-5.2	+5.4	+5.9
5	-1.8	-1.7	+8.0	+8.6
6	-1.8	-2.8	+9.4	+11.8
7	-4.9	-4.1	+3.7	+2.0
8	-1.5	+0.9	+4.3	+5.1
9	-2.3	-2.0	+4.2	+5.0
10	-3.5	-3.5	+6.3	+2.6
11	-3.1	-4.8	+5.4	+3.8
12	-2.2	-2.4	+4.7	+3.4

Growth for students in Grades 7 through 9 (receiving STAR) showed mixed changes from one academic year to the next. Grade 7 was up, while Grades 8 and 9 were close to the same. Comprehension growth for students in Grades 10-12 (Communication Skills) was up for 1984-85 from the previous year.

BLACK STUDENTS COMPARED WITH OTHER STUDENTS

A comparison of Black students reading achievement with Other students is provided in Table 5A, with more complete details available in Appendix 3. Table 5A uses a structure similiar to that used in Table 4. Again, the regular reading strand is on the left, while the results for the most common compensatory program at each grade level are at right.

Developmental. For Black students enrolled in the developmental and support but not compensatory programs, the change was more than one NCE point point lower than for Other students in four grades: 3, 4, 5, and 11. Grades 3, 4 and 11 had similiar disparate racial results in the previous cost-effects study. Racial group achievement was almost the same (within one NCE point) for seven grades: 2, 6-10, and 12. In no grade was the average NCE change for Black students substantially higher than the change for Other students.

TABLE 5A
AVERAGE NCE CHANGE
BLACK COMPARED WITH OTHER
1984-85

GRADE	DEVELOPMENTAL, SUPPORT NOT COMPENSATORY		DEVELOPMENTAL, SUPPORT, PLUS COMPENSATORY	
	BLACK	OTHER	BLACK	OTHER
2	-8.2	-7.8	+2.9	+6.1
3	-2.3	-0.3	+7.7	+12.3
4	-6.4	-5.0	+4.6	+8.2
5	-2.3	-0.5	+7.2	+10.6
6	-2.0	-1.3	+8.7	+11.6
7	-4.7	-5.2	+3.6	+4.9
8	-1.7	-1.2	+4.3	+4.2
9	-2.2	-2.7	+4.3	+3.3
10	-3.7	-2.9	+5.6	+10.4
11	-3.4	-2.3	+4.5	+11.0
12	-2.2	-2.0	+4.3	*

Note: (*) indicates less than 10 students in category

Compensatory. To facilitate comparison between racial groups for the major compensatory programs, averages weighted by enrollment were calculated for each program, including the grades primarily served. The results are indicated in Table 5B below. In all the above compensatory programs except STAR, the Other students' change was at least one NCE point higher than the gain for Black students. In STAR without THINK the Black students did better than Other students.

TABLE 5B
READING COMPREHENSION GAINS IN COMPENSATORY PROGRAMS
BLACK STUDENTS COMPARED WITH OTHER STUDENTS
1984-85

COMPENSATORY PROGRAM	GRADE LEVELS	AVERAGE NCE CHANGE BLACK	OTHER
Reading Improvement	2-3	+6.2	+8.6
Reading Strategy	4-5	+6.1	+9.7
STAR (Primary)	6	+8.7	+11.6
STAR (Secondary)	7-9		
Without THINK		+4.6	+2.6
With THINK		+4.1	+4.2
Communication Skills	10-12		
Without THINK		+4.2	+7.0
With THINK		+5.1	+10.6

Appendix 3, comparing Black and Other students, shows proportionately fewer tested Other students in secondary grade compensatory programs. In Grade 7, for example, Other students make up 26% of the non-compensatory group (taking English and Think), but only 13% of the compensatory group taking STAR in addition to English and Think.

OTHER RACIAL CATEGORIES

Appendix 9 presents a racial breakdown which is more complete than the Black-Other used above. In Appendix 9, all five of the racial categories used in the School District are represented. Note that certain of the minorities will not show up in these tables, since they are Lau-serviced, and therefore not in the reading programs under study here.

Table 6 below summarizes the data from Appendix 9 for racial groups in the developmental and support strands. The

Hispanic group has the highest participation in the reading strand components, after Black and White. Hispanic NCE changes were within one point of Black for elementary Grades 2,3,4, and 6. For Grade 5 the Hispanic NCE change of -Ø.9 was over one point better than the Black change of -2.3. In the junior high Grades 7 through 9, Hispanic NCE change was at least one point lower than Black for Grades 7 and 8, while the Hispanic students averaged over one NCE point higher than Blacks in Grade 9. Hispanic student average change was within one point of Black students for Grades 1Ø and 12, but for Grade 11 the Hispanic students had an average decline of -6.Ø, compared with a -3.4 average change for Black students.

TABLE 6
AVERAGE NCE CHANGE -- READING COMPREHENSION
BY RACIAL GROUP
STUDENTS RECEIVING DEVELOPMENTAL AND SUPPORT STRANDS

GRADE	AMER. INDIAN	WHITE	BLACK	ASIAN AMER.	HISPANIC
2	-17.7	-7.7	-8.2	*	-7.3
3	-3.6	Ø.Ø	-2.3	-1.Ø	-2.2
4	-3.8	-4.9	-6.5	-5.7	-6.Ø
5	*	-Ø.6	-2.3	+5.7	-Ø.9
6	*	-1.1	-2.Ø	+1.2	-2.9
7	*	-5.2	-4.8	*	-6.2
8	*	-Ø.9	-1.7	-1.5	-2.7
9	*	-3.Ø	-2.2	*	-1.1
1Ø	*	-2.8	-3.7	*	-2.9
11	*	-1.8	-3.4	*	-6.Ø
12	*	-2.5	-2.2	*	-1.6

Note: (*) Indicates less than 1Ø students in a category.

ADVERSELY AFFECTED

An important task of the Affirmative Reading Skills Program is to improve the reading performance of students adversely affected by school segregation. Adversely affected students are those who had been in a one-race school prior to desegregation (October, 1978) and who had no reading scores above the lower third on a set of tests. By final selection, 11,284 remained in the system for the 1982-83 school year. Of this number, 8,Ø43 were in the enrollment file for this 1984-85 study year.

Appendix 4 contains comparative NCE change data for adversely affected students and those not in that group.

Note the scant representation of adversely affected students in lower grades due to the requirement that students have been in a one-race school in 1978. Normal year-to-year promotion would place the lowest cohort (students who were in Grade 1 in October, 1978) into the Seventh Grade for the 1984-85 study year.

Compensatory. One question to explore is whether particular compensatory programs seem to help adversely affected students more or less than those not adversely affected. With no exceptions, those not adversely affected improved more in the appropriate compensatory program than the adversely affected group. For example, adversely affected students in Grade 10 taking English 2, THINK, and Communication Skills saw an NCE-point gain of 4.1, while non-adversely affected students enrolled in the same three programs had an increase of 7.3.

Developmental. Another question of interest concerns program success at keeping the adversely affected students scores up, if they are not enrolled in a compensatory program. In all grades, however, adversely affected students' averages fell off more in their NCE scores than those of non-adversely affected students. In Grade 11, for example, the adversely affected students taking English 3 and THINK dropped 7.2 NCE points, compared with a smaller drop of 2.6 points for those in the same classes who are not adversely affected.

UPPER THIRD AND MIDDLE THIRD

Is there any difference in the response of racial groups to the reading programs for those students whose reading scores place them in the upper third or middle third? Tables 7A (Upper Third) and 7B (Middle Third) include students who received the developmental and support strand appropriate to their grade level. In the tables, N represents the number of students receiving developmental and support with matching pre and post test scores. Details may be found in Appendices 5 and 6. Students are divided into thirds using their pre-test score. Regression toward the mean would be expected for the upper third group.

For the upper third (see Table 7A below), the average yearly change for Black students was at least one NCE point lower than Other in all grades. This year, for the secondary grades, the upper third major work/honors student data could be looked at separately. (Appendix 5, Part B) In every grade the major work/honors students did better than those upper third students in the regular English course; in addition, the Black/Other performance gap was less for the major work/honors groups than for the regular English category.

TABLE 7A
AVERAGE NCE CHANGE 1984-85
STUDENTS IN UPPER THIRD (PRE-TEST)
BLACK AND OTHER

GRADE	*****BLACK***** ****STUDENTS*** CHANGE	N	****OTHER**** ***STUDENTS** CHANGE	N
2	-13.0	1,482	-11.4	587
3	-6.8	1,076	-3.2	489
4	-10.5	845	-7.4	430
5	-5.3	732	-2.3	372
6	-7.4	547	-5.0	302
7	-10.3	372	-9.0	186
8	-6.4	237	-4.2	158
9	-10.0	265	-7.6	148
10	-6.7	179	-4.9	91
11	-7.4	89	-3.5	60
12	-5.2	52	-2.9	34

In the middle third, the differences between Black and Other students were smaller. In five of the eleven grades (3,4,5,6, and 8) Black students average NCE change was at least one point below the change for other students. Only Grade 3 saw positive changes for both racial groups.

TABLE 7B
AVERAGE NCE CHANGE 1984-85
STUDENTS IN MIDDLE THIRD (PRE-TEST)
BLACK AND OTHER

GRADE	*****BLACK***** ****STUDENTS*** CHANGE	N	****OTHER**** ***STUDENTS** CHANGE	N
2	-3.6	1,288	-3.8	436
3	+1.2	1,109	+2.7	391
4	-4.1	1,199	-2.6	377
5	-1.2	978	+0.1	339
6	-0.3	1,039	+1.0	387
7	-3.2	1,197	-3.4	365
8	-0.8	984	+0.5	266
9	-0.1	763	-0.5	231
10	-3.7	578	-3.3	151
11	-3.1	279	-2.5	92
12	-2.8	157	-2.0	44

MALE AND FEMALE

Appendix 7 compares male with female reading comprehension achievements for Black students. The same comparison is provided for Non-Black students in Appendix 8. Table 8 below summarizes the comparative data for the sexes by race. Black females more frequently do better than males, while among Other differences between sexes are more mixed.

TABLE 8
COMPARISON(1) BY SEX OF AVERAGE NCE CHANGE 1984-85
BLACK STUDENTS AND OTHER STUDENTS
FOR MAJOR READING TREATMENTS

GRADE	DEVELOPMENTAL, SUPPORT, NO COMPENSATORY		DEVELOPMENTAL, SUPPORT, PLUS COMPENSATORY	
	BLACK	OTHER	BLACK	OTHER
2	Female	---	Female	Male
3	Female	---	Female	Male
4	Male	Male	---	Male
5	Female	---	Female	Female
6	---	Male	---	Male
7	Female	Female	Female	Male
8	---	Female	---	Male
9	---	Female	Male	Female
10	---	---	---	Female
11	---	Male	Female	Female
12	---	Male	Male	*

Note (1) The sex with the better NCE change is indicated for each category, where the change is at least one point. Where the difference is less than one point, hyphens (---) are used to so indicate. An asterisk (*) indicates less than ten students in the category.

Reference may be made to Part B of Appendix 7 to examine the major work/honors groups. Female participation is nearly double that of males among Blacks, while the sexes are numerically closer with Other students. Major work in Grade 7, for example, had 91 Black males and 159 Black females; meanwhile, there were 39 Other males and 40 Other females in the major work category.

COSTS

Per student costs were developed for each reading strand component, as summarized in Appendix 10. For example, in Grades 1 through 3 there were 705 teachers, with an estimated 40 percent of their time devoted to reading and an average salary of $26,160. Adding an additional 25% for fringe benefits brings the total personnel cost to $9,221,000. Additionally, $572,000 was spent for texts and other materials, for a total cost of $9,793,000. Enrollment in Grades 1 through 3 was 16,745. (Omitted are certain categories of students not receiving the regular program and withdrawn students.) Dividing the total cost by the total enrollment yields an average per student cost of $585.

Some further examples of per student cost calculation are presented below (from Appendix 10):

PROGRAM	TOTAL COST	ENROLLMENT	PER STUDENT COST
Reading Improvement	$1,602,878	1,911	$839
Reading Strategy	$2,465,337	2,656	$928
STAR (Elementary)	$1,721,839	1,617	$1,065

The combined per student cost for each set of reading strand components is presented in Table 9. (For a finer breakdown, see Appendix 11.) Estimated total costs from summing the components are given in the column at right. Viewing the cost estimates next to the effect patterns in Table 8 should give an indication of program worth, i.e., cost-effectiveness.

Caution is again given against a mechanical interpretation. One cannot, for example, assume that pumping in n increments of $1,204 in Grade 12 for English 4, Think, and Communication Skills would give n more students an NCE gain of 4.7 points. The $1,204 tends to be optimistically low since it includes all students enrolled in that set of programs as the divisor. The 4.7 NCE will tend to be optimistically high, since it includes only those who attended frequently and took both tests.

Note, however, that in such a dynamic system, wider questions could also be posed. Reference to Appendix 11, for example, shows the two elementary support programs costing $8 per student for Linking Language Learnings and $13 for Developmental Reading Probes. Could increased support spending (currently in the tens of dollars range) in the earlier grades prevent many students from falling into the lower one-third and later needing expensive compensatory programs (in the thousand dollar range)?

TABLE 9
PER STUDENT COSTS AND EFFECTS
MAJOR REGULAR AND COMPENSATORY STRANDS
1984-85

GRADE	DEVELOPMENTAL AND SUPPORT		DEVELOP, SUPPORT PLUS COMPENSATORY	
	COST	EFFECT	COST	EFFECT
2	$593	-8.1	$1432	+3.8
3	$593	-1.7	$1432	+7.7
4	$352	-6.1	$1280	+5.4
5	$233	-1.8	$1161	+8.0
6	$377	-1.8	$1442	+9.4
7	$414	-4.9	$1082	+3.7
8	"	-1.5	"	+4.3
9	"	-2.3	"	+4.2
10	$414	-3.5	$1204	+6.3
11	"	-3.1	"	+5.4
12	"	-2.2	"	+4.7

COST-EFFECTIVENESS

Table 10 on the following page combines program costs and effects, where possible, into a cost-effect ratio. The units of the cost-effect ratio are dollars per point of NCE gain. Reminder is given of the caveats presented in earlier sections of this paper. No ratio is calculated for the student groups for which the effect was negative or less than one NCE point. Ratios were calculated only for students receiving compensatory programs since few of the non-compensatory groups had a positive effect (as measured here).

The cost-effect ratios in Table 10 range from $96 per NCE point gain in Grade 6 Star Hoffman Labs (which was the lowest last year also) up to $506 for Grade 5 Diagnostic Reading Clinic Remediation. Out of range with less than one point gain were the two groups in Grade 4 Diagnostic Reading Clinic and Grade 7 STAR without THINK. Of the twenty-five treatment categories in Table 10, nine categories reflected less than $200 per NCE point gain, ten fell in the $200-$400 range, three were in the $400-$600 range, and three were out of range.

TABLE 10
COMPENSATORY PROGRAM COST EFFECTIVENESS
1984-85

GRADE	PROGRAM	COST (1)	NCE EFFECT	COST/ EFFCT RATIO
2	Reading Improvement	$1,432	+3.8	$377
3	Reading Improvement	$1,432	+7.7	$186
4	Reading Strategy	$1,280	+5.4	$237
4	Reading Strategy (2)	$1,553	+3.8	$409
4	Diag.Rdg.Clc.-Remediation	$1,434	-3.8	(3)
4	Diag.Rdg.Clc.-Remediation (2)	$1,707	+0.8	(3)
5	Star Hoffman Labs	$1,161	+3.8	$306
5	Reading Strategy	$1,161	+8.0	$145
5	Reading Strategy (2)	$1,434	+7.8	$188
5	Diag.Rdg.Clc.-Remediation	$1,315	+2.6	$506
5	Diag.Rdg.Clc.-Remediation (2)	$1,588	+7.6	$209
6	STAR	$1,442	+9.4	$153
6	Star Hoffman Labs	$1,305	+13.6	$96
7	STAR (with THINK)	$1,082	+3.7	$292
7	STAR (without THINK)	$806	+0.3	(3)
8	STAR (with THINK)	$1,082	+4.3	$252
8	STAR (without THINK)	$806	+1.9	$424
9	STAR (with THINK)	$1,082	+4.2	$258
9	STAR (without THINK)	$806	+7.3	$110
10	Comm. Skills (with THINK)	$1,204	+6.3	$191
10	Comm. Skills (without THINK)	$928	+5.8	$160
11	Comm. Skills (with THINK)	$1,204	+5.4	$223
11	Comm. Skills (without THINK)	$928	+2.9	$320
12	Comm. Skills (with THINK)	$1,204	+4.7	$256
12	Comm. Skills (without THINK)	$928	+5.2	$178

Notes:

(1) Cost is the sum of the estimated cost per student for all of the reading strand components received.

(2) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.

(3) No cost-effect ratio was calculated where the effect measure was negative or less than one NCE point.

An additional complicating factor acting across the effects in Table 10 is the implicit assumption that, with no compensatory program, the NCE point change would be zero. In fact, there is reason to expect, from the performance of the students not in compensatory programs, that there would be a drop. Consequently, even a program with a 0 NCE change may have had a real positive effect by preventing a drop of, say, 3 points.

MAJOR FINDINGS

The major findings of this study are summarized below.

1. The primary grades compensatory program, Reading Improvement, has a cost-effect ratio of $377 and $186 per NCE point change in Grades 2 and 3 respectively. Black students' average gain is 6.2 NCE points, compared with 8.6 for Other students. The results are almost on par with last year's outcomes. In these grades there are no alternative programs for comparison.

2. In the upper elementary Grades 4 and 5, three compensatory programs were employed. Reading Strategy was most cost-effective at below $250 per NCE point gain. Next was STAR Hoffman Labs at $306. Diagnostic Reading Clinic - Remediation had a negative effect measure for Grade 4 again this year, while for Grade 5 it showed $506 per NCE point gain. Black students' gains were over 3 points less than Other students for Reading Strategy.

3. For the upper elementary compensatory students, a one-day diagnosis is available at a cost of $273 per student. The diagnosis does not demonstrate a positive effect using the NCE measure. The measure may not be appropriate, since a child's referral to diagnosis indicates a special problem.

4. Secondary compensatory program effects are consistently positive. STAR students, in Grades 7 through 9, had an average NCE change of 4.1 (with THINK). Tenth through Twelfth Grade students in Communication Skills (with THINK) had an average NCE gain of 5.8 points. Of special concern were the Grade 7 students receiving STAR but not THINK, who had a gain of less than one point.

5. At every grade level elementary students receiving the developmental and support components of the reading program, but not the compensatory, fall behind relative to their peers. The elementary support programs are very inexpensive: $8 per student for Linking Language Learnings and $13 per student for Diagnostic Reading Probes. These cost levels are slightly less than one-twentieth that of the secondary level support program, THINK.

6. At the secondary level, students receiving the developmental program, English, and the support program, THINK, fall relative to their peers at all grade levels.

7. Students at the senior high level receiving only the developmental strand (English) advance faster than those with English and THINK for Grades 10 and 11.

8. The general pattern for students receiving the developmental and support strands in the upper and middle third (on the pre-test score) is for downward shift, with Black students falling further than Other students.

9. For non-compensatory students, a comparison was made in this study between magnet school students in Grades 6 through 9, who do not receive THINK, and those at other schools who receive THINK. In Grades 6 and 9 the groups did almost the same, while in Grades 7 and 8, the magnet group did better.

10. An analysis was included of Major Work/Honors English students. Consistent strong results were observed, especially in the upper third. Also observed were proportionately high enrollments of Black females in this category.

RECOMMENDATIONS

Responding to the findings, recommendations below have been suggested toward correction of problems. For reference, each finding is listed next to the relevant recommendation (Recommendations 1 through 10). In addition to specific program areas, a general recommendation (11), and two study-related recommendations (12 and 13) are included.

1. Finding. Reading Improvement is the only compensatory program serving Grades Two and Three. Black students show less gain than Other, as they did last year. Recommendation. Run an experimental program on a side-by-side basis to determine if a more cost-effective approach can be found with equal racial impact.

2. Finding. At Grades 4 and 5 the Reading Strategy Program showed more cost effectiveness than the Diagnostic Reading Clinic - Remediation Program in the first two cost-effects studies. In the present study, the difference continued. Recommendation. Review the goals and implementation of Diagnostic Reading Clinic - Remediation.

3. Finding. The Diagnostic Reading Clinic - Diagnosis did not show any positive effects in this study, but it is costly. Recommendation. Reappraise the goals of Diagnostic Reading Clinic - Diagnosis.

4. Finding. Communication Skills at the high school level had improved cost-effectiveness. STAR students in Grades 7 and 8 not receiving THINK fared poorly. Recommendation. Continue the strong gains present, explore the racial disparities of Communication Skills results, and investigate Grade 7 and 8 students who don't get THINK.

5. Finding. As in the previous study, elementary students not enrolled in compensatory programs show declines at all grade levels studied. There is a relatively low per student level of support strand spending at that level. Recommendation. Explore the feasibility of increased support spending in elementary schools.

6. Finding. Secondary school students receiving English but not THINK have average NCE decreases at all grade levels. Recommendation. Look for ways to improve the English program.

7. Finding. THINK, which showed poorly on the previous two Cost Effects studies, helped some categories of students this year. Recommendation. Check for continued strengths and look for improvement in problem areas.

8. Finding. With few exceptions, Black students' do worse than Other students' in the upper and middle thirds. Recommendation. Review the research literature and the experience of other districts to find successful programs which address special learning styles or which have strong positive results with Black students.

9. Finding. Between magnet school students not receiving THINK and the others receiving THINK, there were mixed results. Recommendation. Keep the groups under observation, especially as the competancy-related materials are introduced into junior high THINK classes.

10. Finding. Major Work/Honors English do much better than students in the regular program. Recommendation. Continue the achievement levels while looking for ways to recruit more such eligible students, especially among males.

11. General Recommendation. By normal progression, the lowest cohort of students adversely affected by segregation is currently (March, 1986) in Grade 8. Undertake a timely response to Recommendations 4, 6, and 7.

12. Study Recommendation. The Cost-Effects Study depends upon the Grade Reporting File for project enrollment data. Present levels of missing records in that file threaten the accuracy of analysis of some components. Therefore, file maintenance should be improved.

13. Study Recommendation. Additional effort could be profitably spent in refining the method of determining accurate cost figures for the reading strand components.

NOTES

1. Reorganization in the Cleveland School System: A Six-Month Review. Office of School Monitoring and Community Relations. Cleveland (Ohio): March 25, 1983. See Recommendation Number 24.

2. Monthly Progress Report to the Federal District Court. Cleveland City School District. Cleveland: December,1985. See Remedial Order Component III, Required Action Number 4.

3. Sumner, Gerald C., et al. An Analysis of the Cost and Effectiveness of Compensatory Education: Technical Report #7 From the Study of the Sustaining Effects of Compensatory Education on Basic Skills. RMC Research Corporation. Santa Monica, California. August, 1979.

4. Technical Bulletin No. 1. Comprehensive Test of Basic Skills Form S. CTB/Mcgraw-Hill. Monterey, California. 1974.

5. Gallagher, Michael P. Cost Effectiveness -- Affirmative Reading Skills Program -- 1983-84. Cleveland (Ohio): City School District, 1985.

APPENDIX 1
PART A -- ELEMENTARY LEVEL

READING COMPREHENSION
NCE CHANGE -- SPRING 84 TO SPRING 85
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			STUDENTS TREATED	STUDENTS TESTED PRE AND POST		NCE AVERAGES		
	DEVELOPMENTAL	SUPPORT	COMPENSATORY		N	%	PRE	POST	CHANGE
2	Reading	LLL	None	4,876	3,935	80.7	61.8	53.8	-8.1
2	Reading	LLL	Reading Improvement	372	122	32.8	34.4	38.3	+3.8
3	Reading	LLL	None	3,871	3,181	82.2	58.6	56.8	-1.7
3	Reading	LLL	Reading Improvement	603	445	73.8	33.9	41.6	+7.7
3	Reading	LLL	Reading Improvement (1)	132	99	75.0	31.6	38.2	+6.6
4	Reading	DRP	None	3,491	2,919	83.6	59.3	53.2	-6.1
4	Reading	DRP	None(1)	225	171	76.0	51.9	40.5	-11.4
4	Reading	DRP	Reading Strategy	604	418	69.2	32.9	38.3	+5.4
4	Reading	DRP	Reading Strategy(1)	239	187	78.2	33.4	37.2	+3.8
4	Reading	DRP	Diag.Rdg.Clc.-Remed	72	46	63.9	39.7	35.9	-3.8
4	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	46	31	67.4	34.1	35.0	+0.8
4	Reading	DRP	Star Hoffman Labs	74	53	71.6	35.4	39.8	+4.4
5	Reading	DRP	None	3,110	2,556	82.2	57.0	55.2	-1.8
5	Reading	DRP	None(1)	110	90	81.8	45.6	45.0	-0.6
5	Reading	DRP	Reading Strategy	718	602	83.8	31.9	39.8	+8.0
5	Reading	DRP	Reading Strategy(1)	123	102	82.9	31.5	39.2	+7.8
5	Reading	DRP	Diag.Rdg.Clc.-Remed	138	105	76.1	31.8	34.4	+2.6
5	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	76	64	84.2	33.7	41.3	+7.6
5	Reading	DRP	Star Hoffman Labs	106	82	77.4	33.4	37.3	+3.8
5	Reading	DRP	STAR	252	205	81.3	32.9	40.7	+7.8
6	Reading	Think	None	2,935	2,372	80.8	57.2	55.4	-1.8
6	Reading	Think	STAR	1,127	961	85.3	33.3	42.7	+9.4
6	Reading	Think	Star Hoffman Labs	166	151	91.0	31.4	44.9	+13.6
6	Reading	(Magnet)	None	302	275	91.1	61.1	58.8	-2.4

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.

Refer to Part C of Appendix 1 for further explanatory notes.

APPENDIX 1
PART B -- SECONDARY LEVEL

READING COMPREHENSION
NCE CHANGE -- SPRING 84 TO SPRING 85
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			STUDENTS TREATED	STUDENTS TESTED PRE AND POST		NCE AVERAGES		
	DEVELOPMENTAL	SUPPORT	COMPENSATORY		N	%	PRE	POST	CHANGE
7	English	Think	None	2,865	2,184	76.2	52.9	48.0	-4.9
7	English	(Magnet)	None	157	143	91.1	54.3	52.9	-1.5
7	English	None	STAR	157	131	83.4	35.3	35.6	+0.3
7	English	Think	STAR	950	681	71.7	34.1	37.8	+3.7
7	Eng Maj Work	Think	None	362	329	90.9	67.7	65.9	-1.8
8	English	Think	None	2,413	1,714	71.0	52.2	50.7	-1.5
8	English	(Magnet)	None	134	119	88.8	54.5	55.7	+1.2
8	English	None	STAR	149	116	77.9	36.4	38.3	+1.9
8	English	Think	STAR	1,084	834	76.9	33.1	37.4	+4.3
8	Eng Maj Work	Think	None	379	359	94.7	65.3	66.4	+1.1
9	English 1	Think	None	2,140	1,500	70.1	52.9	50.6	-2.3
9	English 1	(Magnet)	None	196	180	91.8	56.1	53.9	-2.2
9	English 1	None	STAR	329	256	77.8	35.2	42.6	+7.3
9	English 1	Think	STAR	625	532	85.1	34.9	39.0	+4.2
9	Eng 1 Honors	Think	None	292	265	90.8	65.4	64.8	-0.6
10	English 2	Think	None	1,553	1,096	70.6	51.9	48.5	-3.5
10	English 2	None	None	621	472	76.0	51.8	49.5	-2.3
10	English 2	None	Communic Skills	489	393	80.4	31.9	37.7	+5.8
10	English 2	Think	Communic Skills	327	271	82.9	32.0	38.3	+6.3
10	Eng 2 Honors	Think	None	200	185	92.5	61.2	63.0	+1.8
11	English 3	Think	None	834	580	69.5	51.5	48.4	-3.1
11	English 3	None	None	945	653	69.1	49.2	47.1	-2.1
11	English 3	None	Communic Skills	454	385	84.8	30.9	33.9	+2.9
11	English 3	Think	Communic Skills	170	152	89.4	30.3	35.6	+5.4
11	Eng 3 Honors	Think	None	149	134	89.9	63.9	63.4	-0.5
12	English 4	Think	None	406	320	78.8	53.7	51.5	-2.2
12	English 4	None	None	600	459	76.5	51.5	49.8	-1.7
12	English 4	None	Communic Skills	222	194	87.4	30.6	35.8	+5.2
12	English 4	Think	Communic Skills	74	63	85.1	31.7	36.4	+4.7
12	Eng 4 Honors	Think	None	84	73	86.9	63.8	65.9	+2.1
12	None	None	None	475	234	49.3	45.8	43.1	-2.6

APPENDIX 1
PART C -- EXPLANATORY NOTES

READING STRAND ENROLLMENT	The Cleveland Public School System follows an affirmative reading skills plan in response to the desegregation remedial order. Three instructional strands are offered to students under the plan: developmental, support, and compensatory.
DEVELOPMENTAL STRAND	English and Reading Language Arts curriculum is included here. For grades 1-11, all students are included except some in Lau or special education. For grade 12, English is optional. Grades 1-6 ..... Basal Reader Series Grades 7-12 ..... Comprehensive, full-year English
SUPPORT STRAND	Provides additional enrichment, corrective, and remedial support to the basic English and Reading Language Arts curriculum. Grades 1-3 ..... Linking Language Learnings (LLL) Grades 4-5 ..... Developmental Reading Probes (DRP) Grades 6-10 ..... Think
COMPENSATORY STRAND	Remedial support for students who score at or below the 33rd percentile on a standardized reading test.
STUDENTS - TREATED	To be included, students must have enrolled in the strand components long enough (elementary) or attended frequently enough (secondary). However, a child's enrollment by itself was used to indicate treatment in the developmental reading strand for grades 1 through 11, except for special education, Lau serviced, and non-attendees. The same logic was used for treatment by the Support strand for grades 1 through 6.
STUDENTS - TESTED	This represents the sample on which averages were computed and is not random. Students needed appropriate pre and post tests to be included here.
NCE AVERAGES	The California Test of Basic Skills (CTBS) comprehension subtest is used for all grades. Grade one is not included because no pretest is available. The NCE score is based on the Normal Curve Equivalent Scale, recommended for use in federal evaluative studies. An NCE of 50 would place a child in the middle of his grade level group, with half scoring higher and half lower.
CHANGE	Change represents the mean diffreence between post and pre NCE scores. The change in NCE is proportionate to the change in the number of standard deviations from the mean; 21 NCE units is approximately 1 standard deviation.

APPENDIX 2
PART A -- ELEMENTARY LEVEL

READING COMPREHENSION
NCE CHANGE -- ACADEMIC YEARS 1982-83 THROUGH 1984-85
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			1984-85		1983-84		1982-83	
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	AV NCE CHANGE	STUDENTS TESTED PRE/POST	AV NCE CHANGE	STUDENTS TESTED PRE/POST	AV NCE CHANGE
2	Reading	LLL	None	3,935	-8.1	3,760	-8.6	3,715	-5.6
2	Reading	LLL	Reading Improvement	122	+3.9	124	+7.3	480	-4.6
3	Reading	LLL	None	3,181	-1.7	3,384	-2.0	3,526	-1.9
3	Reading	LLL	Reading Improvement	445	+7.7	487	+9.0	729	+2.5
3	Reading	LLL	Reading Improvement(1)	99	+6.6	N.A.	N.A.	N.A.	N.A.
4	Reading	DRP	None	2,919	-6.1	2,948	-5.2	3,236	-4.9
4	Reading	DRP	None(1)	171	-11.4	183	-8.2	127	-2.6
4	Reading	DRP	Reading Strategy	418	+5.4	489	+5.9	822	+3.2
4	Reading	DRP	Reading Strategy(1)	187	+3.8	205	+6.6	115	-0.6
4	Reading	DRP	Diag.Rdg.Clc.-Remed	46	-3.8	52	-2.1	151	-0.6
4	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	31	+0.8	47	-3.7	N.A.	N.A.
4	Reading	DRP	Star Hoffman Labs	53	+4.4	N.A.	N.A.	N.A.	N.A.
5	Reading	DRP	None	2,556	-1.8	2,808	-1.7	3,441	+0.7
5	Reading	DRP	None(1)	90	-0.6	43	-3.0	78	+3.5
5	Reading	DRP	Reading Strategy	602	+8.0	758	+8.6	1,107	+8.5
5	Reading	DRP	Reading Strategy(1)	102	+7.8	44	+7.6	92	+10.0
5	Reading	DRP	Diag.Rdg.Clc.-Remed	105	+2.6	39	+6.1	182	+5.7
5	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	64	+7.6	82	+2.4	N.A.	N.A.
5	Reading	DRP	Star Hoffman Labs	82	+3.8	152	+7.0	N.A.	N.A.
5	Reading	DRP	STAR	205	+7.8				
6	Reading	Think	None	2,372	-1.8	2,838	-2.8	2,227	+2.0
6	Reading	Think	STAR	961	+9.4	1,034	+11.8	1,315	+11.2
6	Reading	Think	Star Hoffman Labs	151	+13.6	179	+10.8	197	+15.1
6	Reading	(Magnet)	None	275	-2.4	N.A.	N.A.	N.A.	N.A.

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.

Refer to Part C of Appendix 1 for further explanatory notes.

APPENDIX 2
PART B -- SECONDARY LEVEL

READING COMPREHENSION
NCE CHANGE -- ACADEMIC YEARS 1982-83 THROUGH 1984-85
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			1984-85		1983-84		1982-83	
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	AV NCE CHANGE	STUDENTS TESTED PRE/POST	AV NCE CHANGE	STUDENTS TESTED PRE/POST	AV NCE CHANGE
7	English	Think	None	2,184	-4.9	2,377	-4.1	2,369	-5.1
7	English	(Magnet)	None	143	-1.5	N.A.	N.A.	N.A.	N.A.
7	English	None	STAR	131	+0.3	313	+3.2	196	-0.5
7	English	Think	STAR	681	+3.7	625	+2.0	1,405	+0.2
7	Eng Maj Work	Think	None	329	-1.8	N.A.	N.A.	N.A.	N.A.
8	English	Think	None	1,714	-1.5	1,874	+0.9	1,553	+1.6
8	English	(Magnet)	None	119	+1.2	N.A.	N.A.	N.A.	N.A.
8	English	None	STAR	116	+1.9	338	+6.6	143	+6.4
8	English	Think	STAR	834	+4.3	907	+5.1	1,043	+6.0
8	Eng Maj Work	Think	None	359	+1.1	N.A.	N.A.	N.A.	N.A.
9	English 1	Think	None	1,500	-2.3	1,287	-2.0	1,275	+0.5
9	English 1	(Magnet)	None	180	-2.2	N.A.	N.A.	N.A.	N.A.
9	English 1	None	STAR	256	+7.3	463	+7.1	306	+6.5
9	English 1	Think	STAR	532	+4.2	506	+5.0	693	+8.1
9	Eng 1 Honors	Think	None	265	-0.6	N.A.	N.A.	N.A.	N.A.
10	English 2	Think	None	1,096	-3.5	940	-3.5	833	+0.2
10	English 2	None	None	472	-2.3	476	-3.6	665	+0.9
10	English 2	None	Communic Skills	393	+5.8	396	+4.8	791	+9.3
10	English 2	Think	Communic Skills	271	+6.3	210	+2.6	118	+8.0
10	Eng 2 Honors	Think	None	185	+1.8	N.A.	N.A.	N.A.	N.A.
11	English 3	Think	None	580	-3.1	687	-4.8	621	-2.6
11	English 3	None	None	653	-2.1	862	-4.7	1,085	-0.5
11	English 3	None	Communic Skills	385	+2.9	212	+1.7	414	+7.1
11	English 3	Think	Communic Skills	152	+5.4	91	+3.8	82	+3.0
11	Eng 3 Honors	Think	None	134	-0.5	N.A.	N.A.	N.A.	N.A.
12	English 4	Think	None	320	-2.2	333	-2.4	455	+0.8
12	English 4	None	None	459	-1.7	661	-1.6	637	+1.1
12	English 4	None	Communic Skills	194	+5.2	137	+5.0	232	+10.2
12	English 4	Think	Communic Skills	63	+4.7	61	+3.4	N.A.	N.A.
12	Eng 4 Honors	Think	None	73	+2.1	N.A.	N.A.	N.A.	N.A.
12	None	None	None	234	-2.6	378	-2.0	324	+0.4

APPENDIX 3
PART A -- ELEMENTARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- BLACK AND OTHER
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			BLACK				OTHER			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
2	Reading	LLL	None	2,868	61.6	53.4	-8.2	1,067	62.3	54.6	-7.8
2	Reading	LLL	Reading Improvement	87	35.2	38.1	+2.9	35	32.5	38.6	+6.1
3	Reading	LLL	None	2,276	58.1	55.8	-2.3	905	59.8	59.6	-0.3
3	Reading	LLL	Reading Improvement	334	34.2	41.3	+7.1	111	32.9	42.3	+9.4
3	Reading	LLL	Reading Improvement(1)	68	31.3	39.1	+7.8	31	32.3	36.2	+3.9
4	Reading	DRP	None	2,101	58.1	51.7	-6.4	818	62.2	57.2	-5.0
4	Reading	DRP	None(1)	124	51.7	40.7	-11.0	47	52.4	39.4	-12.7
4	Reading	DRP	Reading Strategy	328	32.5	37.1	+4.6	90	34.5	42.8	+8.2
4	Reading	DRP	Reading Strategy(1)	145	33.4	37.0	+3.6	42	33.5	38.2	+4.7
4	Reading	DRP	Diag.Rdg.Clc.-Remed	40	40.6	35.7	-4.9	*	*	*	*
4	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	21	35.1	35.4	+0.3	10	32.0	34.0	+2.0
4	Reading	DRP	Star Hoffman Labs	42	35.1	40.4	+5.2	11	36.3	37.5	+1.2
5	Reading	DRP	None	1,806	56.5	54.1	-2.3	750	58.3	57.9	-0.5
5	Reading	DRP	None(1)	64	45.1	46.8	+1.7	26	46.7	40.4	-6.2
5	Reading	DRP	Reading Strategy	463	32.0	39.2	+7.2	139	31.3	41.9	+10.6
5	Reading	DRP	Reading Strategy(1)	78	31.1	38.8	+7.8	24	32.8	40.4	+7.6
5	Reading	DRP	Diag.Rdg.Clc.-Remed	76	33.0	32.8	-0.2	29	28.7	38.7	+9.9
5	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	48	32.5	39.1	+6.6	16	37.1	47.6	+10.6
5	Reading	DRP	Star Hoffman Labs	67	32.6	36.7	+4.1	15	37.0	39.9	+2.9
5	Reading	DRP	STAR	156	32.2	40.9	+8.7	49	35.2	40.1	+4.9
6	Reading	Think	None	1,665	56.3	54.3	-2.0	707	59.1	57.8	-1.3
6	Reading	Think	STAR	748	33.5	42.2	+8.7	213	32.7	44.4	+11.6
6	Reading	Think	Star Hoffman Labs	119	31.1	43.5	+12.4	32	32.2	50.1	+17.9
6	Reading	(Magnet)	None	194	60.8	57.6	-3.2	81	62.0	61.5	-0.5

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.
(*) Less than 10 students in a category.
Refer to Part C of Appendix 1 for further explanatory notes.

APPENDIX 3
PART B -- SECONDARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- BLACK AND OTHER
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			BLACK				OTHER			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
7	English	Think	None	1,620	52.1	47.3	-4.7	564	55.2	50.0	-5.2
7	English	(Magnet)	None	113	53.2	52.3	-0.8	30	58.9	55.0	-3.9
7	English	None	STAR	112	35.0	35.1	+0.1	19	36.7	38.3	+1.6
7	English	Think	STAR	591	34.0	37.5	+3.6	90	35.1	40.0	+4.9
7	Eng Maj Work	Think	None	250	66.9	64.8	-2.1	79	70.3	69.2	-1.1
8	English	Think	None	1,271	51.1	49.4	-1.7	443	55.4	54.3	-1.2
8	English	(Magnet)	None	98	53.3	54.0	+0.6	21	59.7	63.7	+4.0
8	English	None	STAR	97	35.8	38.0	+2.2	19	39.4	39.7	+0.3
8	English	Think	STAR	731	32.9	37.2	+4.3	103	34.1	38.3	+4.2
8	Eng Maj Work	Think	None	250	64.2	65.3	+1.1	109	67.9	69.0	+1.1
9	English 1	Think	None	1,101	52.0	49.8	-2.2	399	55.4	52.7	-2.7
9	English 1	(Magnet)	None	138	54.4	51.4	-3.0	42	61.7	62.1	+0.4
9	English 1	None	STAR	209	34.2	42.3	+8.1	47	39.8	43.8	+4.0
9	English 1	Think	STAR	459	34.5	38.8	+4.3	73	37.4	40.6	+3.3
9	Eng 1 Honors	Think	None	202	64.3	63.4	-0.9	63	69.0	69.4	+0.3
10	English 2	Think	None	827	51.5	47.8	-3.7	269	53.3	50.4	-2.9
10	English 2	None	None	343	51.0	48.4	-2.6	129	53.7	52.3	-1.4
10	English 2	None	Communic Skills	326	31.6	37.0	+5.4	67	33.2	41.1	+7.9
10	English 2	Think	Communic Skills	229	31.8	37.4	+5.6	42	32.9	43.3	+10.4
10	Eng 2 Honors	Think	None	131	60.9	61.9	+1.0	54	62.1	65.6	+3.5
11	English 3	Think	None	414	50.2	46.7	-3.4	166	55.0	52.7	-2.3
11	English 3	None	None	453	47.4	45.2	-2.2	200	53.3	51.5	-1.8
11	English 3	None	Communic Skills	343	30.9	33.7	+2.8	42	31.2	35.3	+4.2
11	English 3	Think	Communic Skills	132	30.1	34.7	+4.5	20	31.1	42.1	+11.0
11	Eng 3 Honors	Think	None	97	62.1	61.3	-0.8	37	68.6	68.9	+0.3
12	English 4	Think	None	237	52.6	50.4	-2.2	83	56.6	54.6	-2.0
12	English 4	None	None	324	49.3	47.4	-1.9	135	56.8	55.7	-1.1
12	English 4	None	Communic Skills	166	30.8	35.4	+4.6	28	29.3	38.2	+8.9
12	English 4	Think	Communic Skills	58	31.6	36.0	+4.3	*	*	*	*
12	Eng 4 Honors	Think	None	53	61.4	63.6	+2.2	20	70.3	72.2	+2.0
12	None	None	None	154	43.3	40.0	-3.3	80	50.5	49.2	-1.3

APPENDIX 4
PART A -- ELEMENTARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- ADVERSELY AFFECTED STUDENTS AND OTHER STUDENTS
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			ADVERSELY AFFECTED				OTHER			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
2	Reading	LLL	None	*	*	*	*	3,935	61.8	53.8	-8.1
2	Reading	LLL	Reading Improvement	*	*	*	*	122	34.4	38.3	+3.8
3	Reading	LLL	None	*	*	*	*	3,181	58.6	56.8	-1.7
3	Reading	LLL	Reading Improvement	*	*	*	*	445	33.9	41.6	+7.7
3	Reading	LLL	Reading Improvement(1)	*	*	*	*	99	31.6	38.2	+6.6
4	Reading	DRP	None	14	53.4	49.4	-4.0	2,905	59.3	53.2	-6.1
4	Reading	DRP	None(1)	*	*	*	*	166	52.0	40.5	-11.5
4	Reading	DRP	Reading Strategy	*	*	*	*	410	32.9	38.6	+5.6
4	Reading	DRP	Reading Strategy(1)	*	*	*	*	186	33.4	37.3	+3.9
4	Reading	DRP	Diag.Rdg.Clc.-Remed	*	*	*	*	46	39.7	35.9	-3.8
4	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	*	*	*	*	30	33.3	35.2	+1.8
4	Reading	DRP	Star Hoffman Labs	*	*	*	*	53	35.4	39.8	+4.4
5	Reading	DRP	None	42	49.6	40.9	-8.7	2,514	57.1	55.5	-1.7
5	Reading	DRP	None(1)	*	*	*	*	83	45.5	45.3	-0.1
5	Reading	DRP	Reading Strategy	40	31.6	34.6	+3.0	562	31.9	40.2	+8.3
5	Reading	DRP	Reading Strategy(1)	10	35.0	34.1	-0.9	92	31.1	39.8	+8.7
5	Reading	DRP	Diag.Rdg.Clc.-Remed	22	33.0	31.5	-1.5	83	31.5	35.2	+3.7
5	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	*	*	*	*	63	33.5	41.1	+7.6
5	Reading	DRP	Star Hoffman Labs	*	*	*	*	77	33.4	37.7	+4.3
5	Reading	DRP	STAR	14	29.4	34.0	+4.6	191	33.2	41.2	+8.0
6	Reading	Think	None	69	48.8	45.0	-3.8	2,303	57.4	55.7	-1.8
6	Reading	Think	STAR	197	36.0	40.5	+4.5	764	32.6	43.3	+10.6
6	Reading	Think	Star Hoffman Labs	*	*	*	*	143	31.5	44.9	+13.5
6	Reading	(Magnet)	None	*	*	*	*	274	61.2	58.8	-2.4

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.
*Indicates less than 10 students in a category.
Refer to Part C of Appendix 1 for further explanatory notes.

APPENDIX 4
PART B -- SECONDARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- ADVERSELY AFFECTED STUDENTS AND OTHER STUDENTS
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			ADVERSELY AFFECTED				OTHER			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
7	English	Think	None	141	47.1	36.3	-10.8	2,043	53.3	48.8	-4.5
7	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
7	English	None	STAR	39	33.2	31.0	-2.2	92	36.1	37.5	+1.4
7	English	Think	STAR	220	33.0	34.7	+1.7	461	34.6	39.3	+4.7
7	Eng Maj Work	Think	None	*	*	*	*	329	67.7	65.9	-1.8
8	English	Think	None	121	47.2	42.4	-4.8	1,593	52.6	51.3	-1.3
8	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
8	English	None	STAR	34	36.9	33.5	-3.4	82	36.2	40.2	+4.0
8	English	Think	STAR	254	31.8	33.6	+1.8	580	33.6	39.0	+5.4
8	Eng Maj Work	Think	None	*	*	*	*	357	65.3	66.4	+1.1
9	English 1	Think	None	140	46.7	42.5	-4.1	1,360	53.6	51.4	-2.2
9	English 1	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
9	English 1	None	STAR	93	33.5	38.2	+4.7	163	36.2	45.0	+8.8
9	English 1	Think	STAR	220	33.4	36.8	+3.4	312	35.9	40.6	+4.7
9	Eng 1 Honors	Think	None	*	*	*	*	262	65.5	64.7	-0.7
10	English 2	Think	None	117	48.8	39.2	-9.6	979	52.3	49.6	-2.8
10	English 2	None	None	45	44.3	39.9	-4.5	427	52.5	50.5	-2.0
10	English 2	None	Communic Skills	117	31.1	31.5	+0.4	276	32.2	40.3	+8.1
10	English 2	Think	Communic Skills	83	29.6	33.7	+4.1	188	33.0	40.3	+7.3
10	Eng 2 Honors	Think	None	*	*	*	*	183	61.4	63.3	+1.9
11	English 3	Think	None	60	43.8	36.6	-7.2	520	52.4	49.8	-2.6
11	English 3	None	None	74	38.8	36.6	-2.2	579	50.5	48.5	-2.0
11	English 3	None	Communic Skills	143	29.8	29.3	-0.5	242	31.6	36.5	+5.0
11	English 3	Think	Communic Skills	55	26.8	28.0	+1.2	97	32.2	39.9	+7.7
11	Eng 3 Honors	Think	None	*	*	*	*	132	63.9	63.6	-0.3
12	English 4	Think	None	37	48.5	41.7	-6.8	283	54.3	52.8	-1.6
12	English 4	None	None	65	42.2	36.3	-5.9	394	53.1	52.0	-1.0
12	English 4	None	Communic Skills	72	29.3	32.9	+3.6	122	31.4	37.5	+6.2
12	English 4	Think	Communic Skills	20	29.9	31.7	+1.8	43	32.6	38.7	+6.1
12	Eng 4 Honors	Think	None	*	*	*	*	71	64.2	66.2	+2.0
12	None	None	None	45	38.2	33.7	-4.6	189	47.6	45.4	-2.2

APPENDIX 5
PART A -- ELEMENTARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 UPPER THIRD STUDENTS (PRE TEST)
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			BLACK				OTHER			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
2	Reading	LLL	None	1,482	71.5	58.5	-13.0	587	71.6	60.3	-11.4
2	Reading	LLL	Reading Improvement	*	*	*	*	*	*	*	*
3	Reading	LLL	None	1,076	68.7	61.9	-6.8	489	69.0	65.8	-3.2
3	Reading	LLL	Reading Improvement	*	*	*	*	*	*	*	*
3	Reading	LLL	Reading Improvement(1)	*	*	*	*	*	*	*	*
4	Reading	DRP	None	845	69.7	59.2	-10.5	430	72.4	65.0	-7.4
4	Reading	DRP	None(1)	27	69.4	44.5	-24.9	12	68.6	44.2	-24.4
4	Reading	DRP	Reading Strategy	*	*	*	*	*	*	*	*
4	Reading	DRP	Reading Strategy(1)	*	*	*	*	*	*	*	*
4	Reading	DRP	Diag.Rdg.Clc.-Remed	*	*	*	*	*	*	*	*
4	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	*	*	*	*	*	*	*	*
4	Reading	DRP	Star Hoffman Labs	*	*	*	*	*	*	*	*
5	Reading	DRP	None	732	68.1	62.7	-5.3	372	68.9	66.7	-2.3
5	Reading	DRP	None(1)	*	*	*	*	*	*	*	*
5	Reading	DRP	Reading Strategy	*	*	*	*	*	*	*	*
5	Reading	DRP	Reading Strategy(1)	*	*	*	*	*	*	*	*
5	Reading	DRP	Diag.Rdg.Clc.-Remed	*	*	*	*	*	*	*	*
5	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	*	*	*	*	*	*	*	*
5	Reading	DRP	Star Hoffman Labs	*	*	*	*	*	*	*	*
5	Reading	DRP	STAR	*	*	*	*	*	*	*	*
6	Reading	Think	None	547	70.5	63.1	-7.4	302	71.8	66.7	-5.0
6	Reading	Think	STAR	13	69.8	52.3	-17.5	*	*	*	*
6	Reading	Think	Star Hoffman Labs	*	*	*	*	*	*	*	*
6	Reading	(Magnet)	None	83	74.0	64.8	-9.2	41	73.2	67.4	-5.8

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.
(*) Less than 10 students in a category
Refer to Part C of Appendix 1 for further explanatory notes.

APPENDIX 5
PART B -- SECONDARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 UPPER THIRD STUDENTS (PRE TEST)
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			BLACK				OTHER			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
7	English	Think	None	372	65.3	55.0	-10.3	186	67.9	58.9	-9.0
7	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
7	English	None	STAR	*	*	*	*	*	*	*	*
7	English	Think	STAR	*	*	*	*	*	*	*	*
7	Eng Maj Work	Think	None	184	72.5	67.9	-4.6	69	73.2	71.1	-2.2
8	English	Think	None	237	66.8	60.4	-6.4	158	68.3	64.0	-4.2
8	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
8	English	None	STAR	*	*	*	*	*	*	*	*
8	English	Think	STAR	*	*	*	*	*	*	*	*
8	Eng Maj Work	Think	None	168	70.2	68.7	-1.5	79	73.9	72.7	-1.2
9	English 1	Think	None	265	66.3	56.3	-10.0	148	68.1	60.5	-7.6
9	English 1	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
9	English 1	None	STAR	*	*	*	*	*	*	*	*
9	English 1	Think	STAR	*	*	*	*	*	*	*	*
9	Eng 1 Honors	Think	None	137	70.1	66.2	-3.9	53	72.1	72.4	+0.3
10	English 2	Think	None	179	64.0	57.4	-6.7	91	66.1	61.1	-4.9
10	English 2	None	None	89	66.7	60.4	-6.3	47	65.5	62.0	-3.4
10	English 2	None	Communic Skills	*	*	*	*	*	*	*	*
10	English 2	Think	Communic Skills	*	*	*	*	*	*	*	*
10	Eng 2 Honors	Think	None	76	68.6	67.4	-1.2	32	70.5	69.9	-0.6
11	English 3	Think	None	89	65.8	58.4	-7.4	60	68.7	65.3	-3.3
11	English 3	None	None	92	67.7	57.5	-10.3	71	69.5	65.0	-4.4
11	English 3	None	Communic Skills	*	*	*	*	*	*	*	*
11	English 3	Think	Communic Skills	*	*	*	*	*	*	*	*
11	Eng 3 Honors	Think	None	55	70.9	68.9	-2.1	29	72.9	73.2	+0.3
12	English 4	Think	None	52	70.5	65.3	-5.2	34	69.0	66.1	-2.9
12	English 4	None	None	73	67.5	62.7	-4.8	56	73.6	70.7	-2.9
12	English 4	None	Communic Skills	*	*	*	*	*	*	*	*
12	English 4	Think	Communic Skills	*	*	*	*	*	*	*	*
12	Eng 4 Honors	Think	None	30	70.9	70.4	-0.5	16	75.3	75.3	+0.1
12	None	None	None	19	66.1	55.1	-11.0	18	69.1	66.2	-2.9

APPENDIX 6
PART A -- ELEMENTARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- MIDDLE THIRD STUDENTS (PRE TEST)
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			BLACK				OTHER			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
2	Reading	LLL	None	1,288	52.4	48.9	-3.6	436	52.7	48.8	-3.8
2	Reading	LLL	Reading Improvement	*	*	*	*	*	*	*	*
3	Reading	LLL	None	1,109	49.7	50.9	+1.2	391	50.2	52.9	+2.7
3	Reading	LLL	Reading Improvement	69	43.1	44.2	+1.1	16	43.6	48.6	+4.9
3	Reading	LLL	Reading Improvement(1)	*	*	*	*	*	*	*	*
4	Reading	DRP	None	1,199	51.2	47.1	-4.1	377	51.4	48.8	-2.6
4	Reading	DRP	None(1)	85	48.6	40.0	-8.7	30	49.5	39.5	-10.0
4	Reading	DRP	Reading Strategy	10	49.6	33.3	-16.3	*	*	*	*
4	Reading	DRP	Reading Strategy(1)	*	*	*	*	*	*	*	*
4	Reading	DRP	Diag.Rdg.Clc.-Remed	14	48.7	37.6	-11.1	*	*	*	*
4	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	*	*	*	*	*	*	*	*
4	Reading	DRP	Star Hoffman Labs	*	*	*	*	*	*	*	*
5	Reading	DRP	None	978	50.4	49.1	-1.2	339	50.3	50.4	+0.1
5	Reading	DRP	None(1)	43	47.9	49.5	+1.6	15	49.1	45.2	-3.9
5	Reading	DRP	Reading Strategy	67	42.7	43.1	+0.3	20	42.8	46.4	+3.6
5	Reading	DRP	Reading Strategy(1)	*	*	*	*	*	*	*	*
5	Reading	DRP	Diag.Rdg.Clc.-Remed	21	45.4	37.0	-8.4	*	*	*	*
5	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	*	*	*	*	*	*	*	*
5	Reading	DRP	Star Hoffman Labs	12	43.3	38.4	-4.8	*	*	*	*
5	Reading	DRP	STAR	41	43.4	48.4	+5.0	*	*	*	*
6	Reading	Think	None	1,039	50.9	50.6	-0.3	387	50.7	51.6	+1.0
6	Reading	Think	STAR	141	45.0	45.6	+0.7	39	45.0	49.5	+4.5
6	Reading	Think	Star Hoffman Labs	18	43.4	44.1	+0.7	*	*	*	*
6	Reading	(Magnet)	None	103	52.4	52.7	+0.3	38	52.5	55.0	+2.5

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.
(*) Less than 10 students in a category.
Refer to Part C of Appendix 1 for further explanatory notes.

APPENDIX 6
PART B -- SECONDARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- MIDDLE THIRD STUDENTS (PRE TEST)
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			BLACK				OTHER			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
7	English	Think	None	1,197	48.7	45.5	-3.2	365	49.5	46.0	-3.4
7	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
7	English	None	STAR	11	46.7	37.5	-9.2	*	*	*	*
7	English	Think	STAR	29	46.4	41.2	-5.3	*	*	*	*
7	Eng Maj Work	Think	None	65	51.6	56.2	+4.6	10	50.3	56.5	+6.2
8	English	Think	None	984	48.3	47.5	-0.8	266	49.4	49.9	+0.5
8	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
8	English	None	STAR	10	46.9	37.5	-9.4	*	*	*	*
8	English	Think	STAR	41	46.3	39.8	-6.4	*	*	*	*
8	Eng Maj Work	Think	None	82	51.9	58.3	+6.5	30	52.1	59.2	+7.1
9	English 1	Think	None	763	48.8	48.6	-0.1	231	49.1	48.6	-0.5
9	English 1	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
9	English 1	None	STAR	21	46.4	44.6	-1.8	10	51.8	54.6	+2.8
9	English 1	Think	STAR	24	47.2	41.4	-5.8	*	*	*	*
9	Eng 1 Honors	Think	None	65	52.1	57.4	+5.3	10	53.0	53.6	+0.6
10	English 2	Think	None	578	49.9	46.2	-3.7	151	49.6	46.4	-3.3
10	English 2	None	None	191	49.8	47.2	-2.6	64	51.5	48.5	-3.0
10	English 2	None	Communic Skills	*	*	*	*	*	*	*	*
10	English 2	Think	Communic Skills	*	*	*	*	*	*	*	*
10	Eng 2 Honors	Think	None	54	50.4	54.3	+3.9	21	51.8	60.5	+8.7
11	English 3	Think	None	279	48.3	45.3	-3.1	92	50.0	47.5	-2.5
11	English 3	None	None	250	48.5	46.6	-1.9	96	49.5	47.7	-1.8
11	English 3	None	Communic Skills	21	47.5	35.8	-11.7	*	*	*	*
11	English 3	Think	Communic Skills	*	*	*	*	*	*	*	*
11	Eng 3 Honors	Think	None	40	51.2	51.7	+0.5	*	*	*	*
12	English 4	Think	None	157	49.5	46.7	-2.8	44	49.4	47.5	-2.0
12	English 4	None	None	165	49.6	47.1	-2.5	55	49.7	48.6	-1.1
12	English 4	None	Communic Skills	*	*	*	*	*	*	*	*
12	English 4	Think	Communic Skills	*	*	*	*	*	*	*	*
12	Eng 4 Honors	Think	None	22	49.6	54.6	+5.0	*	*	*	*
12	None	None	None	73	48.6	44.5	-4.1	42	50.0	47.5	-2.5

APPENDIX 7
PART A -- ELEMENTARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- BLACK STUDENTS BY SEX
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			MALE				FEMALE			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
2	Reading	LLL	None	1,419	60.3	50.9	-9.4	1,449	62.9	55.9	-7.0
2	Reading	LLL	Reading Improvement	57	34.6	35.4	+0.7	30	36.2	43.4	+7.1
3	Reading	LLL	None	1,084	57.8	53.7	-4.1	1,192	58.3	57.6	-0.7
3	Reading	LLL	Reading Improvement	183	33.9	39.3	+5.4	151	34.7	43.7	+9.1
3	Reading	LLL	Reading Improvement(1)	40	29.7	33.7	+4.0	28	33.6	46.8	+13.1
4	Reading	DRP	None	972	56.8	50.9	-5.9	1,129	59.3	52.3	-7.0
4	Reading	DRP	None(1)	64	52.4	41.0	-11.4	60	51.0	40.5	-10.5
4	Reading	DRP	Reading Strategy	198	31.8	36.8	+5.0	130	33.5	37.6	+4.1
4	Reading	DRP	Reading Strategy(1)	82	32.9	38.6	+5.8	63	34.0	34.8	+0.7
4	Reading	DRP	Diag.Rdg.Clc.-Remed	23	36.6	34.0	-2.6	17	46.0	37.9	-8.1
4	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	12	37.8	36.3	-1.5	*	*	*	*
4	Reading	DRP	Star Hoffman Labs	25	34.1	41.8	+7.6	17	36.6	38.3	+1.6
5	Reading	DRP	None	851	56.3	52.4	-4.0	955	56.6	55.7	-0.9
5	Reading	DRP	None(1)	30	42.1	40.3	-1.7	34	47.8	52.6	+4.7
5	Reading	DRP	Reading Strategy	231	31.6	37.1	+5.4	232	32.4	41.4	+8.9
5	Reading	DRP	Reading Strategy(1)	40	30.3	35.9	+5.6	38	31.9	41.9	+10.1
5	Reading	DRP	Diag.Rdg.Clc.-Remed	47	32.0	33.0	+0.9	29	34.6	32.6	-2.0
5	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	28	33.3	39.4	+6.0	20	31.4	38.8	+7.4
5	Reading	DRP	Star Hoffman Labs	43	32.9	36.2	+3.3	24	32.2	37.6	+5.4
5	Reading	DRP	STAR	85	32.8	39.0	+6.2	71	31.4	43.2	+11.7
6	Reading	Think	None	738	55.6	53.4	-2.2	927	56.9	55.0	-1.9
6	Reading	Think	STAR	394	33.0	42.1	+9.1	354	34.0	42.3	+8.4
6	Reading	Think	Star Hoffman Labs	70	29.4	43.7	+14.3	49	33.6	43.3	+9.7
6	Reading	(Magnet)	None	90	59.9	59.6	-0.3	145	61.1	57.2	-3.8

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.
(*) Indicates less than 10 students in category.
Refer to Part C of Appendix 1 for further explanatory notes.

APPENDIX 7
PART B -- SECONDARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- BLACK STUDENTS BY SEX
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			MALE				FEMALE			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
7	English	Think	None	791	51.8	45.0	-6.8	829	52.2	49.5	-2.8
7	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
7	English	None	STAR	59	35.7	32.1	-3.6	53	34.3	38.5	+4.3
7	English	Think	STAR	304	34.1	37.0	+2.9	287	33.8	38.1	+4.3
7	Eng Maj Work	Think	None	91	68.2	65.8	-2.4	159	66.2	64.2	-1.9
8	English	Think	None	574	50.4	48.7	-1.7	697	51.6	50.0	-1.6
8	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
8	English	None	STAR	47	34.8	36.2	+1.4	50	36.8	39.6	+2.9
8	English	Think	STAR	386	31.9	36.1	+4.2	345	34.1	38.5	+4.4
8	Eng Maj Work	Think	None	97	65.0	67.1	+2.1	153	63.7	64.1	+0.5
9	English 1	Think	None	505	52.0	50.0	-2.0	596	52.0	49.6	-2.4
9	English 1	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
9	English 1	None	STAR	95	34.6	42.3	+7.7	114	33.9	42.2	+8.4
9	English 1	Think	STAR	246	33.6	38.8	+5.1	213	35.5	38.8	+3.3
9	Eng 1 Honors	Think	None	72	63.0	61.5	-1.5	130	65.0	64.4	-0.6
10	English 2	Think	None	397	51.1	47.5	-3.6	430	51.9	48.2	-3.8
10	English 2	None	None	176	48.8	46.1	-2.8	167	53.3	50.9	-2.4
10	English 2	None	Communic Skills	158	31.9	37.5	+5.6	168	31.3	36.5	+5.2
10	English 2	Think	Communic Skills	122	31.4	37.4	+6.0	107	32.2	37.3	+5.1
10	Eng 2 Honors	Think	None	46	60.2	61.1	+0.9	85	61.2	62.3	+1.1
11	English 3	Think	None	212	50.4	47.4	-3.0	202	49.9	46.0	-3.9
11	English 3	None	None	187	45.1	43.9	-1.2	266	49.0	46.1	-2.8
11	English 3	None	Communic Skills	147	30.0	33.3	+3.3	196	31.6	33.9	+2.4
11	English 3	Think	Communic Skills	74	31.4	33.4	+2.0	58	28.5	36.2	+7.7
11	Eng 3 Honors	Think	None	31	63.4	61.2	-2.2	66	61.5	61.4	-0.2
12	English 4	Think	None	117	53.0	50.8	-2.2	120	52.2	50.0	-2.3
12	English 4	None	None	99	49.4	48.7	-0.6	225	49.3	46.8	-2.5
12	English 4	None	Communic Skills	68	28.8	35.5	+6.6	98	32.2	35.4	+3.2
12	English 4	Think	Communic Skills	32	30.9	37.2	+6.3	26	32.5	34.5	+1.9
12	Eng 4 Honors	Think	None	16	62.6	63.6	+1.0	37	60.9	63.6	+2.7
12	None	None	None	70	41.0	36.4	-4.5	84	45.2	42.9	-2.3

APPENDIX 8
PART A -- ELEMENTARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- NON-BLACK STUDENTS BY SEX
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT DEVELOPMENTAL	SUPPORT	COMPENSATORY	MALE STUDENTS TESTED PRE/POST	MALE NCE AVERAGES PRE	POST	CHANGE	FEMALE STUDENTS TESTED PRE/POST	FEMALE NCE AVERAGES PRE	POST	CHANGE
2	Reading	LLL	None	561	61.8	53.5	-8.3	506	63.0	55.8	-7.2
2	Reading	LLL	Reading Improvement	19	31.4	38.1	+6.6	16	33.7	39.2	+5.5
3	Reading	LLL	None	451	60.3	60.2	-0.1	454	59.4	59.0	-0.5
3	Reading	LLL	Reading Improvement	62	30.8	40.7	+9.9	49	35.5	44.3	+8.9
3	Reading	LLL	Reading Improvement(1)	19	31.6	38.6	+6.9	12	33.3	32.4	-0.8
4	Reading	DRP	None	404	62.2	57.9	-4.3	414	62.2	56.4	-5.7
4	Reading	DRP	None(1)	26	52.5	39.3	-13.3	21	52.2	40.3	-12.0
4	Reading	DRP	Reading Strategy	52	34.0	43.5	+9.6	38	35.3	41.8	+6.4
4	Reading	DRP	Reading Strategy(1)	28	32.1	37.8	+5.6	14	36.1	39.1	+2.9
4	Reading	DRP	Diag.Rdg.Clc.-Remed	*	*	*	*	*	*	*	*
4	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	*	*	*	*	*	*	*	*
4	Reading	DRP	Star Hoffman Labs	*	*	*	*	*	*	*	*
5	Reading	DRP	None	354	58.6	57.7	-0.9	396	58.1	58.0	-0.1
5	Reading	DRP	None(1)	16	48.5	39.8	-8.7	10	43.7	41.4	-2.3
5	Reading	DRP	Reading Strategy	83	30.8	40.5	+9.7	56	32.1	44.1	+11.9
5	Reading	DRP	Reading Strategy(1)	12	33.5	37.0	+3.5	12	32.1	43.8	+11.8
5	Reading	DRP	Diag.Rdg.Clc.-Remed	16	27.1	35.0	+7.9	13	30.7	43.2	+12.5
5	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	*	*	*	*	11	39.4	48.3	+8.9
5	Reading	DRP	Star Hoffman Labs	*	*	*	*	*	*	*	*
5	Reading	DRP	STAR	20	37.1	40.6	+3.5	29	33.9	39.8	+5.9
6	Reading	Think	None	345	58.9	58.4	-0.5	362	59.3	57.3	-2.0
6	Reading	Think	STAR	114	30.7	45.7	+15.0	99	35.1	42.8	+7.8
6	Reading	Think	Star Hoffman Labs	21	31.2	48.3	+17.1	11	34.2	53.5	+19.4
6	Reading	(Magnet)	None	40	64.3	62.4	-1.9	41	59.7	60.6	+0.9

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.
(*) Less than 10 students in a category.
Refer to Part C of Appendix 1 for further explanatory notes.

APPENDIX B
PART B -- SECONDARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- NON-BLACK STUDENTS BY SEX
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			MALE				FEMALE			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE	STUDENTS TESTED PRE/POST	NCE AVERAGES PRE	POST	CHANGE
7	English	Think	None	275	55.6	48.3	-7.3	289	54.8	51.5	-3.2
7	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
7	English	None	STAR	*	*	*	*	10	37.4	40.4	+3.0
7	English	Think	STAR	46	35.6	41.0	+5.4	44	34.5	38.9	+4.4
7	Eng Maj Work	Think	None	39	69.4	70.2	+0.8	40	71.3	68.4	-2.9
8	English	Think	None	207	55.2	53.2	-2.1	236	55.6	55.2	-0.4
8	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
8	English	None	STAR	*	*	*	*	12	40.0	39.3	-0.7
8	English	Think	STAR	59	33.4	38.5	+5.1	44	35.0	38.1	+3.1
8	Eng Maj Work	Think	None	45	68.7	70.4	+1.8	64	67.3	68.0	+0.6
9	English 1	Think	None	193	56.5	52.7	-3.9	206	54.4	52.7	-1.7
9	English 1	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
9	English 1	None	STAR	29	40.7	45.5	+4.8	18	38.3	41.1	+2.8
9	English 1	Think	STAR	31	36.1	38.5	+2.5	42	38.3	42.2	+3.9
9	Eng 1 Honors	Think	None	30	66.6	65.9	-0.7	33	71.3	72.5	+1.2
10	English 2	Think	None	131	52.7	49.8	-3.0	138	53.7	50.9	-2.8
10	English 2	None	None	78	54.5	53.0	-1.5	51	52.5	51.2	-1.4
10	English 2	None	Communic Skills	33	33.2	42.0	+8.9	34	33.3	40.3	+7.0
10	English 2	Think	Communic Skills	15	34.2	41.7	+7.5	27	32.2	44.2	+12.0
10	Eng 2 Honors	Think	None	21	61.3	65.5	+4.2	33	62.6	65.7	+3.1
11	English 3	Think	None	69	52.5	52.3	-0.1	97	56.8	53.0	-3.8
11	English 3	None	None	107	52.0	50.1	-1.9	93	54.8	53.2	-1.6
11	English 3	None	Communic Skills	23	30.8	36.3	+5.5	19	31.6	34.2	+2.6
11	English 3	Think	Communic Skills	10	34.4	44.7	+10.3	10	27.8	39.5	+11.7
11	Eng 3 Honors	Think	None	13	63.9	64.5	+0.5	24	71.2	71.3	+0.2
12	English 4	Think	None	51	58.2	57.1	-1.1	32	54.2	50.7	-3.4
12	English 4	None	None	62	60.5	58.4	-2.1	73	53.6	53.3	-0.3
12	English 4	None	Communic Skills	18	31.2	38.6	+7.4	10	25.9	37.4	11.5
12	English 4	Think	Communic Skills	*	*	*	*	*	*	*	*
12	Eng 4 Honors	Think	None	10	78.7	80.0	+1.3	10	61.8	64.4	+2.6
12	None	None	None	38	46.7	46.6	-0.1	42	54.0	51.6	-2.4

APPENDIX 9
PART A -- ELEMENTARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- FIVE RACIAL CATEGORIES
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			AM. INDIAN		WHITE		BLACK		ASIAN AM.		HISPANIC	
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	N(2)	NCE CHANGE	N	NCE CHANGE	N	NCE CHANGE	N	NCE CHANGE	N	NCE CHANGE
2	Reading	LLL	None	12	-17.7	961	-7.7	2,868	-8.2	*	*	86	-7.3
2	Reading	LLL	Reading Improvement	*	*	34	+5.7	87	+2.9	*	*	*	*
3	Reading	LLL	None	13	-3.6	795	0.0	2,276	-2.3	23	-1.0	74	-2.2
3	Reading	LLL	Reading Improvement	*	*	100	+9.1	334	+7.1	*	*	*	*
3	Reading	LLL	Reading Improvement(1)	*	*	29	+4.7	68	+7.8	*	*	*	*
4	Reading	DRP	None	12	-3.8	709	-4.9	2,101	-6.5	16	-5.7	81	-6.0
4	Reading	DRP	None(1)	*	*	43	-13.4	124	-11.0	*	*	*	*
4	Reading	DRP	Reading Strategy	*	*	81	+8.7	328	+4.6	*	*	*	*
4	Reading	DRP	Reading Strategy(1)	*	*	34	+4.8	145	+3.6	*	*	*	*
4	Reading	DRP	Diag.Rdg.Clc.-Remed	*	*	*	*	40	-4.9	*	*	*	*
4	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	*	*	*	*	21	+0.3	*	*	*	*
4	Reading	DRP	Star Hoffman Labs	*	*	*	*	42	+5.2	*	*	*	*
5	Reading	DRP	None	*	*	653	-0.6	1,806	-2.3	22	+5.7	67	-0.9
5	Reading	DRP	None(1)	*	*	26	-6.2	64	+1.7	*	*	*	*
5	Reading	DRP	Reading Strategy	*	*	125	+10.6	463	+7.2	*	*	12	+8.7
5	Reading	DRP	Reading Strategy(1)	*	*	22	+6.1	78	+7.8	*	*	*	*
5	Reading	DRP	Diag.Rdg.Clc.-Remed	*	*	22	+8.6	76	-0.2	*	*	*	*
5	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	*	*	13	+10.5	48	+6.6	*	*	*	*
5	Reading	DRP	Star Hoffman Labs	*	*	15	+2.9	67	+4.1	*	*	*	*
5	Reading	DRP	STAR	*	*	45	+6.3	156	+8.7	*	*	*	*
6	Reading	Think	None	*	*	629	-1.1	1,665	-2.0	13	+1.2	62	-2.9
6	Reading	Think	STAR	*	*	188	+11.5	748	+8.7	*	*	22	+14.0
6	Reading	Think	Star Hoffman Labs	*	*	30	+18.7	119	+12.4	*	*	*	*
6	Reading	(Magnet)	None	*	*	64	-0.9	194	-3.2	*	*	11	-1.4

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.
(2) Students having both a pre and a post test
(*) Indicates less than 10 students in category.
Refer to Part C of Appendix 1 for further explanatory notes.

APPENDIX 9
PART B -- SECONDARY LEVEL

READING COMPREHENSION
NCE CHANGE 1984-85 -- FIVE RACIAL CATEGORIES
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			AM. INDIAN		WHITE		BLACK		ASIAN AM.		HISPANIC	
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	N	NCE CHANGE	N	NCE CHANGE	N	NCE CHANGE	N	NCE CHANGE	N	NCE CHANGE
7	English	Think	None	*	*	487	-5.2	1,620	-4.8	*	*	64	-6.2
7	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
7	English	None	STAR	*	*	16	-0.2	112	+0.1	*	*	*	*
7	English	Think	STAR	*	*	75	+5.5	591	+3.6	*	*	14	+1.6
7	Eng Maj Work	Think	None	*	*	75	-2.0	250	-2.1	*	*	*	*
8	English	Think	None	*	*	375	-0.9	1,271	-1.7	11	-1.5	55	-2.7
8	English	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
8	English	None	STAR	*	*	16	-0.9	97	+2.1	*	*	*	*
8	English	Think	STAR	*	*	82	+4.2	731	+4.3	*	*	19	+4.7
8	Eng Maj Work	Think	None	*	*	102	+0.9	250	+1.1	*	*	*	*
9	English 1	Think	None	*	*	331	-3.0	1,101	-2.2	*	*	61	-1.1
9	English 1	(Magnet)	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
9	English 1	None	STAR	*	*	34	+3.8	209	+8.1	*	*	11	+5.4
9	English 1	Think	STAR	*	*	63	+3.7	459	+4.3	*	*	10	+0.8
9	Eng 1 Honors	Think	None	*	*	56	+0.3	202	-0.9	*	*	*	*
10	English 2	Think	None	*	*	216	-2.8	827	-3.7	*	*	48	-2.9
10	English 2	None	None	*	*	106	-1.5	343	-2.6	*	*	18	-1.8
10	English 2	None	Communic Skills	*	*	52	+7.5	326	+5.4	*	*	15	+9.3
10	English 2	Think	Communic Skills	*	*	32	+11.9	229	+5.6	*	*	*	*
10	Eng 2 Honors	Think	None	*	*	45	+1.8	131	+1.0	*	*	*	*
11	English 3	Think	None	*	*	135	-1.8	414	-3.4	*	*	20	-6.0
11	English 3	None	None	*	*	160	-2.0	453	-2.2	10	+3.4	29	-2.1
11	English 3	None	Communic Skills	*	*	26	+4.8	343	+2.8	*	*	14	+1.6
11	English 3	Think	Communic Skills	*	*	14	+12.3	132	+4.5	*	*	*	*
11	Eng 3 Honors	Think	None	*	*	30	+0.6	97	+0.8	*	*	*	*
12	English 4	Think	None	*	*	63	-2.5	237	-2.2	*	*	16	-1.6
12	English 4	None	None	*	*	104	-1.0	324	-1.9	*	*	19	-3.7
12	English 4	None	Communic Skills	*	*	16	+6.6	166	+4.6	*	*	12	+11.9
12	English 4	Think	Communic Skills	*	*	*	*	58	+4.3	*	*	*	*
12	Eng 4 Honors	Think	None	*	*	16	+1.3	53	+2.2	*	*	*	*
12	None	None	None	*	*	74	-1.7	154	-3.3	*	*	*	*

APPENDIX 10
COST DERIVATION
READING STRAND COMPONENTS
1984-85

STRAND	COMPONENT	GRADES	PERSONNEL			MATERIALS	TOTAL COST	ENROLLMENT TOTAL (NP)[6]	PER STUDENT COST
			NUMBER	PRORATION FOR READING	SALARY PLUS FRINGES				
Developmental	Reading	1-3	705	40%	$9,221,000	$572,000[5]	$9,793,000	16,745	$585
Developmental	Reading	4	196	24%	$1,538,000	$95,000[5]	$1,633,000	4,812	$339
Developmental	Reading	5	187	16%	$978,000	$61,000[5]	$1,039,000	4,731	$220
Developmental	Reading	6	174	8%	$455,000	$28,000[5]	$483,000	4,766	$101
Developmental	English	7-12	219[1]	50%	$3,792,000	$438,000[5]	$4,230,000	30,668	$138
Support	Linking Language Learning	1-3	--[2]	N.A.	$93,232	$40,770	$134,002	16,745	$8
Support	Diagnostic Reading Probes	4-5	--[2]	N.A.	$67,025	$53,600	$120,625	9,543	$13
Support	Think	6-12	348[3]	100%	$6,307,132	$682,600	$6,989,732	25,283	$276
Compensatory	Reading Improvement	2-3	N.A.	N.A.	$1,557,678	$45,200	$1,602,878	1,911 (209)	$839
Compensatory	Reading Strategy (inc. STAR Hoffman)	4-5[4]	N.A.	N.A.	$2,408,931	$56,406	$2,465,337	2,656 (342)	$928
Compensatory	DRC-Diagnosis	4-5[4]	N.A.	N.A.	N.A.	N.A.	$352,337	1,289 (42[5])	$273
Compensatory	DRC-Remediation	4-5[4]	N.A.	N.A.	N.A.	N.A.	$491,184	454 (42[5])	$1,082
Compensatory	STAR (Elementary)	6	N.A.	N.A.	$1,414,939	$306,900	$1,721,839	1,617 (70)	$1,065
Compensatory	STAR (Secondary)	7-9	N.A.	N.A.	$2,504,195	$595,143	$3,099,338	4,638	$668
Compensatory	Communication Skills	10-12	N.A.	N.A.	$2,323,423	$258,150	$2,581,573	3,267	$790

[1]Includes 169 English teachers, 39 English department chairpersons, 8 supervisors, and 3 cluster resource teachers

[2]No full time staff

[3]Includes 151 Think teachers and 197 Think aides

[4]These are primary target grades; some other students may receive the program

[5]Estimated

[6]The number in parentheses tallies the non-public school students served by the program, if any.

APPENDIX 11
PART A -- ELEMENTARY LEVEL

1984-85
PER STUDENT COSTS
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			ESTIMATED PER PUPIL COSTS			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	DEVELOPMENTAL	SUPPORT	COMPENSATORY	TOTAL
2	Reading	LLL	None	$585	$8	0	$593
2	Reading	LLL	Reading Improvement	$585	$8	$839	$1,432
3	Reading	LLL	None	$585	$8	0	$593
3	Reading	LLL	Reading Improvement	$585	$8	$839	$1,432
3	Reading	LLL	Reading Improvement(1)	$585	$8	$1,112	$1,705
4	Reading	DRP	None	$339	$13	0	$352
4	Reading	DRP	None(1)	$339	$13	$273	$625
4	Reading	DRP	Reading Strategy	$339	$13	$928	$1,280
4	Reading	DRP	Reading Strategy(1)	$339	$13	$1,201	$1,553
4	Reading	DRP	Diag.Rdg.Clc.-Remed	$339	$13	$1,082	$1,434
4	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	$339	$13	$1,355	$1,707
4	Reading	DRP	Star Hoffman Labs	$339	$13	$928	$1,280
5	Reading	DRP	None	$220	$13	0	$233
5	Reading	DRP	None(1)	$220	$13	$273	$506
5	Reading	DRP	Reading Strategy	$220	$13	$928	$1,161
5	Reading	DRP	Reading Strategy(1)	$220	$13	$1,201	$1,434
5	Reading	DRP	Diag.Rdg.Clc.-Remed	$220	$13	$1,082	$1,315
5	Reading	DRP	Diag.Rdg.Clc.-Remed(1)	$220	$13	$1,355	$1,588
5	Reading	DRP	Star Hoffman Labs	$220	$13	$928	$1,161
5	Reading	DRP	STAR	$220	$13	$1,065	$1,298
6	Reading	Think	None	$101	$276	0	$377
6	Reading	Think	STAR	$101	$276	$1,065	$1,442
6	Reading	Think	Star Hoffman Labs	$101	$276	$928	$1,305
6	Reading	(Magnet)	None	$101	0	0	$101

Note: (1) Indicates students also received diagnosis at the Diagnostic Reading Clinic Center.

Refer to Part C of Appendix 1 for further explanatory notes.

APPENDIX 11
PART B -- SECONDARY LEVEL

1984-85
PER STUDENT COSTS
BY READING STRAND ENROLLMENT WITHIN GRADE

GRADE	READING STRAND ENROLLMENT			ESTIMATED PER PUPIL COSTS			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	DEVELOPMENTAL	SUPPORT	COMPENTSATORY	TOTAL
7	English	Think	None	$138	$276	0	$414
7	English	(Magnet)	None	$138	0	0	$138
7	English	None	STAR	$138	0	$668	$806
7	English	Think	STAR	$138	$276	$668	$1,082
7	Eng Maj Work	Think	None	$138	$276	0	$414
8	English	Think	None	$138	$276	0	$414
8	English	(Magnet)	None	$138	0	0	$138
8	English	None	STAR	$138	0	$668	$806
8	English	Think	STAR	$138	$276	$668	$1,082
8	Eng Maj Work	Think	None	$138	$276	0	$414
9	English 1	Think	None	$138	$276	0	$414
9	English 1	(Magnet)	None	$138	0	0	$138
9	English 1	None	STAR	$138	0	$668	$806
9	English 1	Think	STAR	$138	$276	$668	$1,082
9	Eng 1 Honors	Think	None	$138	$276	0	$414
10	English 2	Think	None	$138	$276	0	$414
10	English 2	None	None	$138	0	0	$138
10	English 2	None	Communic Skills	$138	0	$790	$928
10	English 2	Think	Communic Skills	$138	$276	$790	$1,204
10	Eng 2 Honors	Think	None	$138	$276	0	$414
11	English 3	Think	None	$138	$276	0	$414
11	English 3	None	None	$138	0	0	$138
11	English 3	None	Communic Skills	$138	0	$790	$928
11	English 3	Think	Communic Skills	$138	$276	$790	$1,204
11	Eng 3 Honors	Think	None	$138	$276	0	$414
12	English 4	Think	None	$138	$276	0	$414
12	English 4	None	None	$138	0	0	$138
12	English 4	None	Communic Skills	$138	0	$790	$928
12	English 4	Think	Communic Skills	$138	$276	$790	$1,204
12	Eng 4 Honors	Think	None	$138	$276	0	$414
12	None	None	None	0	0	0	0

CLEVELAND CITY SCHOOL DISTRICT
DEPARTMENT OF RESEARCH AND ANALYSIS

PROGRAM F3 (CE303E) COST EFFECTIVENESS OF READING PROGRAMS -- 1984-85
GRADE 02 ALL STUDENTS ENROLLED IN READING AND LINK LANG ONLY

SCHOOL	TOTAL	NO TEST SCORES	POST TEST ONLY	PRE TEST ONLY	GRADES NOT SYNC	BOTH TESTS GOOD	PRE TEST AVERAGE	POST TEST AVERAGE	NCE CHANGE
3003	74	1	8		3	62	62.2	53.0	9.19-
3004	50		5	4	1	40	62.4	57.3	5.12-
3012	152	1	19	7	1	124	59.8	49.8	9.91-
3021	168	2	18	3	2	143	61.2	50.7	10.47-
3041	123	1	17	3	6	96	56.0	51.9	4.16-
3058	67		10	2	2	53	60.9	54.0	6.90-
3065	125	5	24	6	1	89	64.6	51.7	12.96-
3068	93	1	6	3	1	82	63.8	47.5	16.26-
3077	146		19	3	5	119	62.3	53.8	8.56-
3079	74		10	4	1	59	65.9	55.5	10.42-
3081	71	1	8		4	58	58.8	56.7	2.08-
3094	42		5	2	1	34	61.8	59.9	1.88-
3104	101		8		1	92	61.9	60.7	1.16-
3112	143	1	14	3	8	117	63.1	55.7	7.45-
3124	109	3	11	4	3	88	58.7	47.5	11.18-
3130	21	2	3			16	64.4	55.3	9.12-
3148	61		7	3	1	50	62.5	54.1	8.44-
3156	38		7	2	1	28	59.5	51.8	7.78-
3168	91	1	23	2	5	60	59.8	54.9	4.90-
3200	72		6	5	2	59	64.7	53.2	11.47-
3240	177	1	23	3	5	145	62.3	51.8	10.53-
3252	56		11	1	1	43	64.5	55.8	8.65-
3256	80	1	7	6		66	68.0	56.3	11.65-
3270	114	1	11	1	2	99	58.5	51.0	7.54-
3294	79	1	4		3	71	62.4	51.4	11.01-
3295	120		14	5	5	96	60.1	50.8	9.37-
3297	21		5			16	70.2	68.0	2.18-
3308	70			24	1	45	70.0	62.1	7.86-
3338	95	3	13	3	3	73	63.0	59.0	4.00-
3339	166	4	19	3	3	137	63.0	56.4	6.53-
3353	166	1	21	2	7	135	60.4	55.7	4.77-
3354	78	2	6	3		67	56.8	52.1	4.70-
3368	116	2	29	5	6	74	64.6	50.6	14.00-
3372	62		4	3		55	61.7	47.8	13.90-
3376	165	2	29	5	5	124	65.3	54.3	10.93-
3388	136		13	6	5	112	62.3	54.2	8.07-
3396	79	1	5	1	1	71	54.5	51.6	2.92-
3400	90	1	15	1	4	69	54.8	51.5	3.26-
3451	95	1	11		4	79	60.9	51.8	9.15-
3485	46		3	1		42	64.1	64.1	.02
3486	64	1	3		4	56	66.4	57.2	9.28-
3487	29	1	2			26	65.2	70.2	5.00
3500	86	3	11	2	2	68	66.1	54.0	12.13-
3544	109	1	8	11	3	86	56.4	49.2	7.17-
3550	21		2	1	1	17	67.5	57.2	10.35-
3551	71	2	11	2	3	53	59.4	58.0	1.39-
3556	79		11	1	1	66	63.9	56.6	7.33-
3596	135	2	22	4	10	97	65.2	52.0	13.12-

APPENDIX 12
REPORT EXAMPLE
GRADE 2 STUDENTS IN DEVELOPMENTAL AND SUPPORT
BUT NOT COMPENSATORY READING PROGRAMS

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CLEVELAND CITY SCHOOL DISTRICT
DEPARTMENT OF RESEARCH AND ANALYSIS

PROGRAM F3 (CE303E) COST EFFECTIVENESS OF READING PROGRAMS -- 1984-85
GRADE 02 ALL STUDENTS ENROLLED IN READING AND LINK LANG ONLY

SCHOOL	TOTAL	NO TEST SCORES	POST TEST ONLY	PRE TEST ONLY	GRADES NOT SYNC	BOTH TESTS GOOD	PRE TEST AVERAGE	POST TEST AVERAGE	NCE CHANGE
3605	28		3	4		21	62.3	55.8	6.47-
3621	57	3	4		1	49	59.7	56.9	2.83-
3622	102	1	7	2	2	90	64.7	55.6	9.16-
3636	121	1	6	3	5	106	60.7	52.9	7.83-
3638	136	1	18	1	4	112	58.9	51.9	7.02-
6085	4	3		1			.0	.0	.00
6290	2	1		1			.0	.0	.00
STRAND	4,876	60	579	162	140	3,935	61.8	53.8	8.05-

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